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Cover Page Footnote

The author would like to thank Professor Richard Squire for his inspiring guidance regarding the topic and structure of this Comment. The author would also like to thank the editorial staff at the Fordham Journal of Corporate & Financial Law, in particular, Shrisha Juneja and Jessica Jang, for their excellent suggestions and solitary endeavor in revising this Comment.

THE COSTS OF BAILOUTS IN THE 2007-08 FINANCIAL CRISIS

Xiaoxi Liu[*]

The 2007-08 bailout programs were initially created under the emergent situation of financial crisis. Despite their effectiveness in stopping the collapse of financial system, those bailouts have been criticized as ill-planned governmental intervention. Nonetheless, based on the calculation of both the dollar amount of return and the rate of return of each program, this Comment argues that the bailouts are in fact good investments. Furthermore, since Dodd-Frank was invented with the primary purpose of curtailing future bailouts, this Comment also argues that Dodd-Frank reflected an unwise, overhasty decision by Congress.

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INTRODUCTION

During the 2007-08 financial crisis, the federal government created a series of bailout programs.[1] By providing powerful liquidity to financial institutions and creating markets for certain financial products, these bailout programs effectively quelled the unprecedented market panic.[2] Years later, people's understanding of these bailout programs has evolved from the initial criticism of "wealth transfer" to a reflective inquiry about the necessity and correctness of these programs.[3] As media reports revealed that the government made billions in profits from the Troubled Asset Relief Program ("TARP"), one of the most notorious bailout programs, people started to wonder whether the 2007-08 bailouts were, in fact, good investments.[4] As the government gradually exited these programs and made the complete transaction data publicly available, it became possible to answer this question by calculating the nominal and percentage return for each program.

When assessing the investment value of the bailout programs, the rate of return has a two-fold significance. First, while the government presents gain or loss in nominal dollars, what investors truly care about is the percentage return.[5] From an investor's perspective, even if a bailout program has made a fortune, if its percentage return is below the market

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1. *See The Federal Bailout*, 2008 FIN. CRISIS & GLOBAL RECESSION, http://2008financialcrisis.umwblogs.org/analysis/the-federal-bailout/ [https://perma.cc/4QEL-X8SW].

2. *See* Ben S. Bernanke, Chairman, Fed. Reserve, Remarks at the Federal Reserve Bank of Kansas City's Annual Economic Symposium: Reflections on a Year of Crisis (Aug. 21, 2009), https://www.federalreserve.gov/newsevents/speech/bernanke20090821a.htm [https://perma.cc/YP9B-5JC8].

3. *See* Ellen Brown, *Financial Meltdown: The Greatest Transfer of Wealth in History*, GLOBAL RES. (Oct. 17, 2008), http://www.globalresearch.ca/financial-meltdown-the-greatest-transfer-of-wealth-in-history/10589 [https://perma.cc/5V6H-S6SM]. *But see* Jonathan Yip, *The Bank Bailout in Perspective*, HARV. POL. REV. (Oct. 24, 2011), http://harvardpolitics.com/arusa/the-bank-bailout-in-perspective/ [https://perma.cc/E3G4-ETFP].

4. *See* Chris Isidore, *U.S. Ends TARP with $15.3 Billion Profit*, CNN MONEY (Dec. 19, 2014), http://money.cnn.com/2014/12/19/news/companies/government-bailouts-end/ [https://perma.cc/FV4D-JPE8]; Wayne Duggan, *Financial Crisis Bailouts Have Earned Taxpayers Billions*, U.S. NEWS (Jan. 19, 2017), http://money.usnews.com/investing/articles/2017-01-19/financial-crisis-bailouts-have-earned-taxpayers-billions [https://perma.cc/6MAQ-T2KH].

5. *See Return on Investment*, INC., https://www.inc.com/encyclopedia/return-on-investment-roi.html [https://perma.cc/QH5B-HRWP].

rate, it would not be considered a good investment. On the other hand, if a program shows a rate of return that is above the market rate, then it may be deemed a good investment for the government. Secondly, the rate of return provides a measurement to judge the degree of compliance of the bailouts with the rule governing the lender of last resort, i.e., Bagehot's dictum.[6] Since Bagehot's dictum prescribes charging high interest rates on loans provided by the Federal Reserve ("Fed"), a bailout program should generate a rate of return that is above the market rate.[7] In this sense, the rate of return also functions as an indicator of how well Bagehot's dictum has been honored.

The rate of return for the 2007-08 bailout programs is not directly available. Generally, for programs for which the government has provided the dollar amount of gain or loss, the annual rate of return[8] can be obtained by using the data and calculating the exact number of days during which transactions have occurred.[9] Calculation becomes more complicated when the program does not provide the actual dollar amount of the gain or loss.[10] In that case, the dollar amount of gain or loss must

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6. *See generally* Walter Bagehot, LOMBARD STREET: A DESCRIPTION OF THE MONEY MARKET (London, Henry S. King & Co. 1873). For over a century, Bagehot's advice has been considered the guiding rule for the lender of last resort during a credit crunch, also referred to as "Bagehot's dictum." *See* Brian F. Madigan, Dir., Fed. Reserve Bd. Div. of Monetary Affairs, Speech at the Federal Reserve Bank of Kansas City's Annual Economic Symposium: Bagehot's Dictum in Practice: Formulating and Implementing Policies to Combat the Financial Crisis (Aug. 21, 2009), https://www.federalreserve.gov/newsevents/speech/madigan20090821a.htm [https://perma.cc/HQW8-ZWQJ].

7. *See generally* Anthony Casey & Eric Posner, *A Framework for Bailout Regulation*, 91 NOTRE DAME L. REV. 479, 531 (2016) (arguing that the application of Bagehot's dictum requires that the government should charge a price somewhat higher than what would prevail in a normal market).

8. Annual return is a better measure for evaluating the investment because it accounts for how many days investors are taking the risk. *See Annual Return*, INVESTOPEDIA, http://www.investopedia.com/terms/a/annual-return.asp [https://perma.cc/6ESL-YYE2].

9. The number of days cannot simply be obtained by counting the number of days between the beginning day and the ending day of a program. If no transactions occurred on some days, these days need to be excluded from the total number of days used in the calculation. The exact number of days can be obtained by examining the data of transactions.

10. Those programs are: the Modified Discount Window, *infra* Section II.A.1, the Term Auction Facility, *infra* Section II.A.2, the Central Bank Liquidity Swap, *infra* Section II.A.3, the Single-Tranche Term Repurchase Agreement, *infra* Section II.A.4,

first be calculated based on the transaction data released by the government.[11] It becomes more difficult when the government's original investment has been converted into financial products that have not yet been liquidated. In that case, not only is the dollar amount of gain or loss unavailable, but the fact that each portfolio will contain illiquid financial products that do not have a daily price also makes it hard to evaluate the true dollar value of the portfolio. For instance, because the government has yet to liquidate the MBS portfolio,[12] no dollar amount of gain or loss has been provided for the Agency Mortgage-Backed Securities ("MBS") Purchase Program.[13] Despite this lack of information, this Comment will estimate both the dollar amount of gain or loss and the rate of return by matching the portfolio information with the current market price.[14] By filling this informational gap, this Comment makes it possible to provide a comprehensive view in regards to both the dollar amount of gain or loss and the percentage return for all the bailout programs.

In addition to providing a solid basis for judging each program's investment value in terms of a calculated gain or loss and percentage return, this Comment will also analyze the regulatory implications of such a calculation. The 2007-08 bailouts were created under the authority of several federal statutes.[15] In particular, many of these programs were created under the Fed's emergency lending authority pursuant to Section 13(3) of the Federal Reserve Act ("the Act"),[16] an authority that the Fed

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the Term Securities Lending Facility, *infra* Section II.A.5, the Primary Dealer Credit Facility, *infra* Section II.A.6, the Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility, *infra* Section II.D.2, and the Commercial Paper Funding Facility, *infra* Section II.D.3.

11. The detailed steps of calculation will be explained throughout this Note as each program is introduced.

12. *See* MARC LABONTE, CONG. RESEARCH SERV., MONETARY POLICY AND THE FEDERAL RESERVE: CURRENT POLICY AND CONDITIONS 19 (2016) ("Fed ruled out MBS sales and . . . continued rolling over maturing securities.").

13. *See infra* Section II.D.4.

14. Since the government has released the data of transactions for this program, the portfolio information can be obtained from the date of transactions. *See Agency Mortgage-Backed Securities (MBS) Purchase Program*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_mbs.htm [https://perma.cc/G4VP-BXE5]. Using a Bloomberg terminal, I tracked those portfolios and matched them with the current market price. *See infra* Section II.D.4.

15. *See* 12 U.S.C. §§ 343(3B), 347b, 353, 1823 (2012).

16. 12 U.S.C. § 343 (2012).

had not invoked for about seventy-six years prior to the financial crisis.[17] Notwithstanding the magnitude of the crisis, the Fed's intensive use of its emergency lending authority was considered problematic; as a result, many bailout programs have been criticized as governmental intervention that creates a "moral hazard," which, allegedly, would encourage private companies to take excessive risk.[18] To prevent the creation of moral hazard in the future, Congress enacted the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank") in July 2010.[19] Engraved with the theme of "anti-bailout," Dodd-Frank contains many provisions that aim to reduce the power of federal officials to create new bailout programs or facilities.[20] The amendments made by Dodd-Frank will render the creation of many bailout programs that are similar to the 2007-08 bailouts extremely difficult, if not impossible, in the future.[21] Nevertheless, it is unlikely that these limits on the government's bailout powers will benefit the taxpayers.[22] This Comment argues that Dodd-Frank reflects an overly hasty decision by Congress. When Congress enacted the statute in July 2010, there was not yet a reason to believe that the investments in the bailouts would be profitable.[23] If the 2007-08 bailouts have indeed been proven to be good investments, as demonstrated by the calculations in this Comment, then this type of value-creating government intervention should not be curtailed. Given the effectiveness of the 2007-08 bailouts in preventing the economy's

17. *See* John L. Walker, *Emergency Tools to Contain A Financial Crisis*, 35 REV. BANKING & FIN. L. 672, 722 (2016).

18. *See* Richard Squire, *Illiquidity vs. Insolvency in the 2008 Crisis and the Congressional Imagination*, *in* CRISI FINANZIARIA RIPOSTE NORMATIVE: VERSO UN NUOVO DIRITTO DELL'ECONOMICA? 93, 94-95, (M. Maugeri & A. Guaccero, eds., 2014).

19. *See* Pub. L. No. 111-203, 124 Stat. 1376 (2010) (codified as amended in scattered sections of 7, 12, and 15 U.S.C. (2012)).

20. 12 U.S.C. §§ 5394(a), 8305, 1851-52; *see* Squire, *supra* note 18, at 105, 113 (summarizing the "anti-bailout" provisions as a new "orderly liquidation authority" in Dodd-Frank § 214(a), the Volcker Rule in § 619, the "swaps pushout rule" in § 716, the "concentration limits" in § 622, and the "Pay-It-Back Act" in § 1302).

21. For instance, the amendments to Section 13(3) of the Federal Reserve Act will likely render the bailout of individual institutions, such as the bailout of AIG and Bear Stearns, impossible. *See infra* Section III.C.3.

22. *See generally* Squire, *supra* note 18 (arguing that Dodd-Frank's anti-interconnectedness and anti-bailouts provisions will unlikely serve the purpose of preparing for the next financial crisis).

23. *See* Squire, *supra* note 18, at 93.

breakdown at large, the government's bailout authority should be preserved.

While many papers have been written about the 2007-08 bailouts, none have looked at all programs together in one single study.[24] Moreover, none of the papers have presented the rate of return for each program, presumably due to the burdensome work of calculating the rate and the lack of necessary information.[25] To fill this gap, this Comment provides a comprehensive view by analyzing all programs together: by presenting both the dollar amount of return and the rate of return, this Comment also provides a better sense of whether a particular bailout was a good investment of taxpayer money. In addition, in light of Dodd-Frank's amendments to the government's bailout authorities, this Comment will examine how relevant provisions of Dodd-Frank will affect a particular bailout program. Part I provides a theoretical basis for understanding the bailouts by introducing the general function of bailouts, the guiding principle for creating specific bailout measures, as well as the government's legal authority for creating bailout programs. Part II presents the dollar amount of gain or loss for each bailout program. By dividing all of the bailout programs into five types, this part classifies each bailout program by examining the economic motivation for the creation of such mechanisms, as well as their interconnectedness with other bailout mechanisms. More importantly, for the amounts that are not readily available, this Part calculates the dollar amounts of each bailout's gains or losses. Part III summarizes the bailouts through a threefold analysis, which considers the gain/loss and rate of return of all programs, the application of Bagehot's dictum, as well as the potential impact of relevant Dodd-Frank provisions. By presenting comprehensive information regarding the gain/loss and percentage return, this Comment fills the informational gap based on which the overly hasty decision of enacting Dodd-Frank was made. If the creation of the bailouts is largely confirmed within the guiding principle, then the curtailment of the

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24. *See generally* L. RANDALL WRAY, LEVY ECON. INST. OF BARD COLL., THE LENDER OF LAST RESORT: A CRITICAL ANALYSIS OF THE FEDERAL RESERVE'S UNPRECEDENTED INTERVENTION AFTER 2007 (2013) (focusing on the unconventional bailout mechanism as well as the low interest rates charged); James Felkerson, *$29,000,000,000,000: A Detailed Look at the Fed's Bailout by Funding Facility and Recipient* (Levy Econ. Inst. of Bard Coll., Working Paper No. 698, 2011) (focusing on an accounting of the funds spent, by facility).

25. This mainly refers to the unavailable information on the Agency Mortgage-Backed Securities Purchase Program. *See supra* text accompanying notes 12-13.

government's bailout authority is absolutely unnecessary. As a result, Dodd-Frank's relevant provisions that aim to curtail the government's bailout authority need to be reconsidered.

I. THE THEORETICAL BACKGROUND OF BAILOUTS

As the lender of last resort, a central bank must respond to a financial crisis effectively and appropriately.[26] An effective response demands that central banks mitigate the market panic as early as possible, limiting the detrimental impact to a controllable stage.[27] However, this requires central banks to act only within an appropriate scope in order to prevent "distortionary effects of government intervention in private financial markets."[28] In guiding central banks' response, economists have adopted Bagehot's dictum set forth in *Lombard Street*, which can be summarized as: "lend early and freely . . . , to solvent firms, against good collateral, and at 'high rates.'"[29]

This concise dictum incorporates well-founded reasoning at both the macroeconomic and microeconomic level.[30] At the macroeconomic level, "lending freely" dictates that the central banks supply adequate liquidity to financial institutions in order to sustain normal market activity.[31] During the financial crisis, market panic leads to the stagnancy of all financial activities.[32] Such stagnancy causes previously liquid financial products to become suddenly illiquid, driving the demand for liquidity even higher.[33] In that situation, desperate institutions are forced to engage

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26. *See generally* Stanley Fischer, Vice Chairman, Bd. of Governors of the Fed. Reserve Sys., Remarks at a Conference Sponsored by the Committee on Capital Markets Regulation: The Lender of Last Resort: An International Perspective (Feb. 16, 2016), https://www.federalreserve.gov/newsevents/speech/fischer20160210a.pdf [https://perma.cc/N5TH-24FD] (stating that the basic function of the lender of last resort during the crisis is to deal with the breakdown of the functioning of the monetary and credit system, therefore limiting the damage caused by the crisis).

27. *See* Madigan, *supra* note 6.

28. *See id*.

29. *See id*. (citation omitted).

30. *See generally id.* (reasoning the rationale underlying Bagehot's dictum from both the macroeconomic and microeconomic perspectives).

31. *See id.* (explaining that providing sufficient liquidity to desperate institutions would prevent the fire sales that usually lead to reduction of assets in those institutions).

32. *See id*.

33. *See id*.

in fire sales, in which their assets' prices significantly drop.[34] Decreased asset prices lead to a reduction in assets as well as credit borrowing, which shrinks economic activity.[35] As a result, supplying adequate liquidity can help institutions avoid fire sales, thereby maintaining market activity at a normal level.[36] At the microeconomic level, the dictum ensures that liquidity is divided efficiently: lending secured by good collateral reduces central banks' risk of losses, and charging a high interest rate eliminates firms' reliance on central banks once liquidity is available in the private market.[37] Rather than specifying the types of entities that the central bank shall lend to, Bagehot vaguely defines the potential recipients as "this man and that man, whenever the security is good."[38] The vague definition of the funds' recipients indicates that Bagehot has foreseen the necessity of lending to an expansive scope of entities,[39] as well as the necessity of central bank's free exercise of its lending authority.[40]

In addition to the aforementioned guiding principle, the creation of bailouts always requires legitimate authorization. Through a number of statutes, Congress has delegated its bailout authority to specific entities that act as lenders of last resort ("LOLR"), including the Fed, the Treasury, and the Federal Deposit Insurance Corporation ("FDIC").[41] Generally, the Fed's lending authority includes the standard discount window lending authority granted under Section 10B of the Act,[42] the authority of open market operations granted under Section 14 of the Act,[43] as well as the emergency lending authority granted under Section 13(3) of the Act.[44] Before Dodd-Frank, Section 13(3) allowed the Fed to lend

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34. *See id*.

35. *See id*.

36. *See id*.

37. *See id*.

38. *See* Bagehot, LOMBARD STREET, *supra* note 6, at 51.

39. *See* Madigan, *supra* note 6, at 1 (arguing that Bagehot does not limit the fund recipients to specific types of entities).

40. *See id.* ("[T]he absence of a routine reason for lending to nonbank institutions does not mean that central banks never need the authority to lend to such entities.").

41. *See* Casey & Posner, *supra* note 7, at 494 (explaining that Congress has delegated its bailout authority to other institutions in a number of statutes, for instance, the Fed and the FDIC); Adam J. Levitin, *In Defense of Bailouts*, 99 GEOR. L.J. 435, 491-92 (2011) (explaining the historical bailout mechanism in which the Treasury and the Fed have adopted the role of LOLR).

42. 12 U.S.C. § 347b (2012).

43. *Id*. § 353.

44. *Id*. § 343(3B).

to individuals or corporate entities in "unusual and exigent circumstances . . . to provide liquidity in times of financial stress."[45] In fact, many of the 2007-08 bailout programs, including the Term Securities Lending Facility ("TSLF"),[46] the Primary Dealer Credit Facility ("PDCF"),[47] the Commercial Paper Funding Facility ("CPFF"),[48] Bear Stearns,[49] AIG,[50] the Term Asset-Backed Securities Loan Facility ("TALF"),[51] and the Agency MBS Facility were created by the Fed by invoking its authority of emergency lending.[52] Different from the Fed's lending authority, the FDIC's bailout power embodies its ability to guarantee institutions' debt pursuant to the "systemic risk exception."[53] The Treasury, by contrast, can only exercise bailout authority with the consent of Congress.[54] For instance, when Congress authorized the Treasury to administer the Troubled Asset Relief Program ("TARP"), it limited the Treasury's use of the funds solely to "purchase, and to make and fund commitments to purchase, troubled assets from any financial institution."[55]

The purpose of a bailout program is to provide temporary liquidity to maintain normal financial activities.[56] In reaction to the 2007-08 financial crisis, the federal government implemented a series of bailout programs.[57] These programs penetrated different aspects of the financial market, injecting liquidity through various ways.

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45. Extensions of Credit by Federal Reserve Banks, 80 Fed. Reg. 78,959 (Dec. 18, 2015).

46. *Infra* Section II.A.5.

47. *Infra* Section II.A.6

48. *Infra* Section II.D.3.

49. *Infra* Section II.B.1.

50. *Infra* Sections II.C.2 to II.C.4.

51. *Infra* Section II.D.1.c.

52. *Infra* Section II.D.4.

53. *See* Martin J. Gruenberg, Vice Chairman of the International Association of Deposit Insurers, FDIC at the Symposium on Deposit Insurance Cross Border Issues, *The FDIC's Approach to Large Bank Resolution Implementation Issues* (May 3, 2007), https://www.fdic.gov/news/news/speeches/archives/2007/chairman/spmay0307.html (explaining that the "systemic risk exception" refers to the FDIC's authority to bypass the least cost test in certain extraordinary circumstances); Casey & Posner, *supra* note 7, at 494 (explaining that the FDIC possesses "a traditional power to make bailouts by rescuing banks that pose a systemic threat . . . [by] pay[ing] all of the bank's creditors"); *see also* 12 U.S.C. § 1823(c)(4)(G) (2012).

54. *See* Levitin, *supra* note 41, at 493.

55. 12 U.S.C. § 5211(a)(1) (2012).

56. *See* Squire, *supra* note 18.

57. *See The Federal Bailout*, *supra* note 1.

II. THE COSTS OF EACH BAILOUT PROGRAM

The bailout programs can be divided into five types: 1) General Aid to Financial Institutions, 2) Deal Facilitation, 3) One-off Bailouts to Financial Institutions, 4) General Market Support, and 5) Auto Industry Bailouts.[58] Each type functioned to solve particular problems in the financial markets, with the ultimate goal of providing liquidity.

A. GENERAL AID TO FINANCIAL INSTITUTIONS

This type of bailout aimed to provide liquidity to financial institutions directly. Depending on the different needs of financial institutions, the supply of liquidity was designed to occur in various formats: short-term Fed loans,[59] currency swaps,[60] repo contracts,[61] liquid securities,[62] guarantees,[63] as well as equity acquisitions.[64]

1. Primary Credit Program: Modified Discount Window

As the first response to the financial crisis, the Primary Credit Program aimed to incentivize banks' access to short term liquidity by modifying the rate and terms of the then-existing discount window.[65] From August 2007 to March 2008, the Fed extended the term of the loan from one day to ninety days and reduced the primary credit rate from one

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58. For an alternative way of categorizing the bailout programs, see Felkerson, *supra* note 24. That paper categorized bailout programs by different stages during which certain programs were created. For instance, stage one has been categorized as the "short-term liquidity provision," stage two as "restart the flow of credit by direct purchases of assets," etc. *Id.* at 8, 21.

59. *See* Primary Credit Program, *infra* Section II.A.1; Term Auction Facility, *infra* Section II.A.2.

60. *See* Central Bank Liquidity Swap, *infra* Section II.A.3.

61. *See* Single-Tranche Term Repurchase Agreement, *infra* Section II.A.4; Primary Dealer Credit Facility, *infra* Section II.A.6.

62. *See* Term Securities Lending Facility, *infra* Section II.A.5.

63. *See* Temporary Liquidity Guarantee Program, *infra* Section II.A.7.

64. *See* Bank Investment Programs under TARP, *infra* Section II.A.8.

65. *Primary Credit Program (the "Discount Program Modification")(Fed)*, SOURCEWATCH, http://www.sourcewatch.org/index.php/Primary_Credit_Program_(the_%22Discount_Program_Modification%22)_(Fed) [https://perma.cc/GM7J-KJA5] (last modified July 14, 2011).

percentage point over the target federal funds rate[66] to twenty-five basis points.[67] On October 29, 2008, the peak outstanding loans amounted to $112 billion.[68] On December 29, 2010, the amount of the outstanding loans returned to their normal levels, as before the crisis.[69]

In assessing the net return of the Primary Credit Program, it is necessary to examine both the total dollar amount of gain or loss and whether a gain is above or below the market rate at the time the fund was provided.[70] Because the Fed Fund rate has usually been used as the benchmark for setting any short-term loan rates, the Fed Fund rate will be used as the comparable market rate in analyzing the investment returns.[71] Because all primary loans have been paid back, the generated interest represents net gain. For a daily assessment, the minimum amount of gain can be calculated by multiplying the primary credit amount with the primary rate, and then dividing the product by 365 days.[72] Each loan rate is compared with the Fed Fund Rate set at that time. Spreadsheet 1 shows an excerpt of transaction data of the Primary Credit Program, together with its comparable Fed Fund rate.[73] As shown, each loan was made at an interest rate that was higher than its correlated Fed Fund rate.[74] Based on the available data of the primary credit amounts and the primary rates, the

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66. The target federal fund rate is defined as "[t]he interest rate charged by one depository institution on an overnight sale of balances at the Federal Reserve to another depository institution, as determined by the Federal Open Market Committee (FOMC) of the Federal Reserve." *Target Rate*, INVESTOPEDIA, http://www.investopedia.com/terms/t/target-rate.asp [https://perma.cc/KRN5-GJR3].

67. *See Primary Credit Program (the "Discount Program Modification")(Fed)*, *supra* note 65.

68. *Reserve Bank Credit: Loans to Depository Institutions: Primary Credit (WPC)*, FED. RESERVE BANK OF ST. LOUIS: FED RESERVE ECON. DATA, https://fred.stlouisfed.org/series/WPC [https://perma.cc/659J-9FHZ] (last updated Mar. 16, 2017).

69. *See id*.

70. *See supra* Introduction.

71. *See Federal Funds Rate*, INVESTOPEDIA, http://www.investopedia.com/terms/f/federalfundsrate.asp [https://perma.cc/7YMQ-9SL3] ("[T]he Federal Funds Rate can be viewed as the base rate that determines the level of all other interest rates in the U.S. economy.").

72. The Fed's published reporting only covers periods starting on July 22, 2010. For the period between August 17, 2007 and December 29, 2010, it is unknown for exactly how many days each loan was lent. In the calculation it is supposed that each loan was only lent out for one day; therefore the gain from each loan represents the minimum amount of return that loan could have generated.

73. *Infra* Appendix 1.

74. *See infra* Appendix 1.

total amount calculated reflects a minimum positive return from this program, equaling $978 million.

Observing Date	Primary Credit (millions of dollars)	Primary rate (%)	Gain/Loss (in dollars)	Fed Fund Rate Dates	Fed Fund Rate (%)
08-15-2007	11.00	5.75	1,732.88	08-01-2007	5.02
08-22-2007	1,200.00	5.75	189,041.10	08-01-2007	5.02
08-29-2007	1,315.00	5.75	207,157.53	08-01-2007	5.02
09-05-2007	1,103.00	5.75	173,760.27	09-01-2007	4.94
09-12-2007	2,932.00	5.75	461,890.41	09-01-2007	4.94
09-19-2007	2,179.00	5.25	313,417.81	09-01-2007	4.94
12-15-2010	22.00	0.75	452.05	12-01-2010	0.18
12-22-2010	28.00	0.75	575.34	12-01-2010	0.18
12-29-2010	52.00	0.75	1,068.49	12-01-2010	0.18
Sum			978,068,08.00		

Spreadsheet 1: Excerpt of Primary Credits with Fed Fund Rate Comparison[75]

2. The Term Auction Facility

Despite the attractive rates and terms of the Modified Discount Window, the Primary Credit Program fell short of its expected success due to the reputational effects of discount borrowing ("DW stigma").[76] The DW stigma refers to banks' reluctance to borrow from the discount window, fearing that such borrowing will be considered an indication of their financial weakness.[77] Because the DW stigma usually escalates

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75. *Effective Federal Funds Rate*, FED. RESERVE BANK OF ST. LOUIS: FED RESERVE ECON. DATA, https://fred.stlouisfed.org/series/FEDFUNDS [https://perma.cc/VU3K-U3TE]; *Historical Discount Rates*, FED. RESERVE DISCOUNT WINDOW, https://www.frbdiscountwindow.org/en/Pages/Discount-Rates/Historical-Discount-Rates.aspx [https://perma.cc/978Y-PY9A] (last updated Mar. 1, 2017).

76. *Term Auction Facility (TAF)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/regreform/reform-taf.htm [https://perma.cc/V3SH-G3VE] ("[M]any banks were reluctant to borrow at the discount window out of fear that their borrowing would become known and would be erroneously taken as a sign of financial weakness.")

77. *See* OLIVIER ARMANTIER, ERIC GHYSELS, ASANI SARKAR & JEFFREY SHRADER, FED. RESERVE BANK OF N.Y., DISCOUNT WINDOW STIGMA DURING THE 2007-2008 FINANCIAL CRISIS 1 (2015), https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr483.pdf [https://perma.cc/6T7Y-988C].

during a financial crisis,[78] the need for a program that distributes liquidity without causing borrowers concern about the DW stigma becomes urgent. In light of this urgent need, the Fed created the Term Auction Facility ("TAF") program in December 2007.[79] Different from traditional discount window borrowing, TAF took the format of auctions in which banks submitted bids stating the amount of liquidity they needed and the interest rate they were willing to pay.[80] This innovative auction format enabled TAF to achieve an "immediate success" in terms of the distribution of liquidity.[81] From December 20, 2007 to March 11, 2010, TAF provided a total of $3818 billion in loans, with the peak amount outstanding at $493 billion on March 9, 2009.[82] The Fed created the TAF based on its standard discount window lending authority.[83] According to the Fed, all TAF loans were repaid in their entirety, along with interest.[84]

The complete data of TAF transactions is available on the Federal Reserve website.[85] With the data provided, the gain from TAF can be calculated by using parameters of the loan date, maturity date, term, loan amount, and the interest rate.[86] The gain of each loan is calculated by multiplying the loan amount, interest rate, and term, then dividing that product by 365 days.[87] After adding up the gains from each loan, the total gain from TAF is **$4.149 billion**.

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78. *See id*. ("[T]he economic consequences of DW stigma may be most severe during financial crises when market participants have strong incentives to identify the weakest financial firms.")

79. *See id.* at 3 (explaining that the main purpose of TAF was to overcome the DW stigma); *Term Auction Facility (TAF)*, *supra* note 76.

80. *See Term Auction Facility*, *supra* note 76.

81. ARMANTIER, GHYSELS, SARKAR & SHRADER, *supra* note 77, at 3, 47 (explaining that the TAF achieved an "immediate success in terms of amount borrowed," given that the submitted bids have been consistently higher than the funds actually allocated under TAF, and that the DW funds have rarely been used since the creation of TAF).

82. *See Term Auction Facility (TAF)*, *supra* note 76.

83. *Id*.

84. *Id*.

85. *Id*.

86. *See id*.

87. The interest rate is the yearly rate. The gain of each loan is measured by how many days each loan was lent out. Dividing the product of (loan amount*interest rate) by 365 we get the daily gain of each loan; by multiplying the result by the term, we get the amount that the loan transaction was able to make.

Loan date	Maturity date	Term (in days)	Borrower	Loan amount (millions of dollars)	Interest rate (%)
12-20-2007	01-17-2008	28	Citibank NA	10.0	4.650
12-20-2007	01-17-2008	28	Norinchukin BK NY BR	10.0	4.650
12-20-2007	01-17-2008	28	Bank of nova scotia NY AGY	14.7	4.650
12-20-2007	01-17-2008	28	Landesbank hessen-thurin NY BR	1,900.0	4.650
12-20-2007	01-17-2008	28	Lloyds TSB BK PLC NY BR	205.9	4.650
12-20-2007	01-17-2008	28	Westlb AG NY BR	2,000.0	4.650
12-20-2007	01-17-2008	28	Toronto-dominion BK NY BR	250.0	4.650
12-20-2007	01-17-2008	28	Bayerische landesbank NY BR	1,000.0	4.650
12-20-2007	01-17-2008	28	Westpac BKG CORP NY BR	90.0	4.650
12-20-2007	01-17-2008	28	Arab BKG CORP NY BR	200.0	4.650
12-20-2007	01-17-2008	28	Societe generale NY BR	39.2	4.650

Spreadsheet 2: Excerpt of Term Auction Facility Data

After examining the total gain from TAF, the interest rate of each loan must be compared with its correlated market rate, i.e., the Fed Fund rate. A complete data comparison of those two sets of rates reveals that each loan of the TAF program was charged at a higher rate than its correlated Fed Fund rate. Spreadsheet 3 shows a list of selected dates on which a TAF loan was made, together with two sets of comparisons. One compares the loan interest rate with the Fed Fund rate charged on that date; the other compares the gain under TAF with a hypothetical gain charged by the Fed Fund rate. As shown, if marked at the Fed Fund rate, the Fed would only make a gain of $3.423 billion, while the total profit from TAF was $4.149 billion. Therefore, by lending through the TAF program, the Fed made $0.726 billion over the risk-free rate.

Term Auction Facility Data				Sum Gain (millions of dollars)			Sum Gain Fed Fund (millions of dollars)
				4149.769849			3243.826702
Loan date	Term (days)	Loan amount (millions of dollars)	Interest (%)	Gain (millions of dollars)	Fed Fund Rate Date	Fed Fund Rate (%)	Gain if Fed Fund (millions of dollars)
12-20-07	28	10.0	4.650	0.035671233	12-01-07	4.240	0.032526027
03-13-08	28	11.0	2.800	0.023627397	03-01-08	2.610	0.02202411
03-27-08	28	1,000.0	2.615	2.006027397	03-01-08	2.610	2.002191781
03-27-08	28	20.0	2.615	0.040120548	03-01-08	2.610	0.040043836
04-10-08	28	3,400.0	2.820	7.355178082	04-01-08	2.280	5.946739726
04-10-08	28	15.0	2.820	0.032449315	04-01-08	2.280	0.026235616
04-24-08	28	500.0	2.870	1.100821918	04-01-08	2.280	0.874520548
04-24-08	28	50.0	2.870	0.110082192	04-01-08	2.280	0.087452055
05-08-08	28	30.0	2.220	0.051090411	05-01-08	1.980	0.045567123

Spreadsheet 3: Comparison Between Loan Interest Rate and Fed Fund Rate

3. Central Bank Liquidity Swap

Through providing short-term liquidity in U.S. dollars to foreign central banks, the Central Bank Liquidity Swap ("CBLS") functioned to stabilize the currency exchange rate between the U.S. dollar and other major foreign currencies.[88] While the CBLS consisted of the Dollar Liquidity Swap Lines and the Foreign Currency Liquidity Swap Lines, only the former was used during the 2008 bailout.[89] Under the Dollar Liquidity Swap Lines, foreign central banks sell and later buy back their currency for dollar in the same exchange rate, and pay interest on the equivalent dollar amount they borrowed from such sell-and-buy-back transactions.[90] The Fed's authority for operating CBLS was granted by Section 14 of the Act.[91] Fortunately, the Fed has made the complete transaction data of this program available, based on which the gain may

88. *See Central Bank Liquidity Swaps*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/monetarypolicy/bst_liquidityswaps.htm [https://perma.cc/UVN8-UQ2W] (last updated Feb. 16, 2017).

89. *See id.* (explaining that the Fed has not drawn on any of the Foreign-Currency Liquidity Swap Lines since their establishment in 2009, despite announced arrangements).

90. *See id.*

91. *See id.*

be calculated.[92] In calculating the gain of the Dollar Liquidity Swap Lines, the relevant parameters are the amount extended, interest rate, as well as the tenor of transaction.[93] The exchange rate of currency is not relevant since the foreign central bank sells and buys back the same amount of foreign currency at the same exchange rate. The gain of each transaction can be calculated by multiplying the amount extended, interest rate, and the tenor, then dividing by 365. After adding up the gain of each transaction, the total gain is approximately **$5.747 billion**.

Central bank counterparty	Tenor (days)	Trade date	Maturity date	Amount extended (millions of dollars)	Interest rate (%)
European Central Bank	28	12-17-07	01-17-08	10,000.0	4.65
Swiss National Bank	28	12-17-07	01-17-08	4,000.0	4.79
European Central Bank	35	12-21-07	01-31-08	10,000.0	4.67
European Central Bank	28	01-14-08	02-14-08	10,000.0	3.95
Swiss National Bank	28	01-14-08	02-14-08	4,000.0	3.91
European Central Bank	28	01-14-08	02-14-08	10,000.0	3.12
European Central Bank	28	03-25-08	04-24-08	15,000.0	2.61

Spreadsheet 4: Excerpt of Central Bank Liquidity Swap Data

4. Single-Tranche Term Repurchase Agreement

With the explicit purpose of providing direct liquidity to primary dealers, the Fed announced the Single-Tranche Term Repurchase Agreement ("ST OMO") in March 2008.[94] The ST OMO transactions were twenty-eight day repurchase contracts in which primary dealers

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92. *See Central Bank Liquidity Swap Lines*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/regreform/reform-swaplines.htm [https://perma.cc/NQM9-LBU5] (last updated Feb. 12, 2016).

93. Tenor represents the number of days from the settlement date to the maturity date.

94. *See Single-Tranche Term Repurchase Agreements, March–December 2008*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/monetarypolicy/bst_tranche.htm [https://perma.cc/KF2Y-2R7E] (last updated Feb. 16, 2017).

were required to post collaterals of certain types, such as treasuries, agency debt or agency MBS, for the ST OMO repo contracts.[95]

The Federal Reserve Bank of New York ("FRBNY") conducted these transactions "under the standard legal authority for conducting temporary open market operations."[96] The amount lent reached $80 billion at its highest on April 30, 2008.[97] This program ended at the end of December 2008,[98] with all loans repaid in their entirety with interest.[99] Since the complete transaction data is available, the gain can be calculated from each transaction by multiplying the trade amount, rate, and term of trade (twenty-eight days), and then dividing that product by 365. Pursuant to this calculation, the total gain of all 375 transactions is approximately **$1.259 billion.**

Trade date	Settlement date	Repurchase date	Term of trade (in days)	Trade amount (millions of dollars)	Rate (%)
03-07-08	03-10-08	04-07-08	28	2,000.0	2.78
03-07-08	03-10-08	04-07-08	28	5,000.0	2.85
03-07-08	03-10-08	04-07-08	28	1,000.0	2.75
03-07-08	03-10-08	04-07-08	28	5,000.0	2.82
03-07-08	03-10-08	04-07-08	28	1,000.0	3.05
03-07-08	03-10-08	04-07-08	28	1,000.0	2.90
03-11-08	03-12-08	04-09-08	28	610.0	2.60
03-11-08	03-12-08	04-09-08	28	500.0	2.65
03-11-08	03-12-08	04-09-08	28	305.0	2.60
03-11-08	03-12-08	04-09-08	28	1,000.0	2.65

95. *See Press Release—Federal Reserve Announces Two Initiatives to Address Heightened Liquidity Pressures in Term Funding Markets*, BD. OF GOVERNORS OF THE FED. RESERVE SYS. (Mar. 7, 2008), https://www.federalreserve.gov/newsevents/press/monetary/20080307a.htm [https://perma.cc/97HN-YL6C].

96. *Single-Tranche Term Repurchase Agreements, March–December 2008*, *supra* note 94.

97. *See Fast Facts, Single-Tranche Term Repurchase Agreements*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/markets/fast_facts.html [https://perma.cc/HAG2-UCEL].

98. *See id.* ("[T]he last auction was conducted in December 2008 and started winding down the first week of January 2009.").

99. *See Single-Tranche Repurchase Agreements*, SOURCEWATCH.ORG., http://www.sourcewatch.org/index.php/Single-Tranche_Repurchase_Agreements. Because the current amount outstanding is zero, all loans have been repaid in full.

03-11-08	03-12-08	04-09-08	28	100.0	2.63
03-11-08	03-12-08	04-09-08	28	5,000.0	2.68
03-11-08	03-12-08	04-09-08	28	1,500.0	2.70

Spreadsheet 5: Excerpt of Single Tranche Term Repurchase Data[100]

5. Term Securities Lending Facility

Compared to ST OMO, which provided primary dealers with cash liquidity, the TSLF program provided liquidity in the form of liquid securities.[101] This program allowed primary dealers to borrow comparatively liquid treasury securities from the Fed by paying a fee and posting collateral consisting of temporarily illiquid securities.[102] Similar to TAF, the TSLF fund utilized an auction mechanism,[103] minimizing the stigma problem. TSLF allowed the Fed to effectively absorb the temporarily illiquid securities, which had been one of the causes of the 2008 financial crisis.[104] This program, created under the Fed's authority under Section 13(3) of the Act,[105] was introduced in March 2008 and ended in February 2010, with all loans being repaid in their entirety, along with interest.[106]

With the available, complete transaction data, the gain was calculated by using the loan date, maturity date, lending fee, and the par amount of the loan.[107] The lending fee is first divided by 100 to represent its percentage value, then by 365 to represent the annual interest rate. Much like the previous calculations, the gain of a single loan transaction can be calculated by multiplying the number of days, par amount lent, and the lending fee, then first dividing the product by 365, and finally dividing

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100. *See Single-Tranche Term Repurchase Agreements, March–December 2008*, *supra* note 94.

101. *See Term Securities Lending Facility (TSLF) and TSLF Options Program (TOP)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_tslf.htm [https://perma.cc/3WJG-WXT7] (last updated Feb. 12, 2016).

102. *See id.*

103. *See id.*

104. *See id.*

105. *See Section 13. Powers of Federal Reserve Banks*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/aboutthefed/section13.htm [https://perma.cc/CSF9-2AST] (last updated Feb. 13, 2017).

106. *See Term Securities Lending Facility (TSLF) and TSLF Options Program (TOP)*, *supra* note 101.

107. *See id.*

the quotient by 100. As calculated, the total gain of the TSLF program is approximately **$699.158 million**.

Trade date	Loan date	Maturity date	Borrower	Lending fee (%)	Par amount lent (millions of dollars)
03-27-08	03-28-08	04-25-08	J.P. Morgan Securities LLC	0.33	3,000.00
03-27-08	03-28-08	04-25-08	Barclays Capital Inc.	0.33	500
03-27-08	03-28-08	04-25-08	UBS Securities LLC.	0.33	15,000.00
03-27-08	03-28-08	04-25-08	Citigroup Global Markets Inc.	0.33	1,000.00
03-27-08	03-28-08	04-25-08	BNP Paribas Securities Corp.	0.33	1,500.00
03-27-08	03-28-08	04-25-08	Morgan Stanley & Co. Incorporated	0.33	5,000.00
03-27-08	03-28-08	04-25-08	Lehman Brothers Inc.	0.33	8,000.00
03-27-08	03-28-08	04-25-08	RBS Securities Inc.	0.33	4,000.00
03-27-08	03-28-08	04-25-08	Goldman, Sachs & Co.	0.33	7,000.00
03-27-08	03-28-08	04-25-08	Deutsche Bank Securities Inc.	0.33	6,000.00
03-27-08	03-28-08	04-25-08	Countrywide Securities Corporation	0.33	1,000.00
03-27-08	03-28-08	04-25-08	Credit Suisse Securities (USA) LLC	0.33	5,000.00
03-27-08	03-28-08	04-25-08	Banc of America Securities LLC	0.33	7,000.00
03-27-08	03-28-08	04-25-08	Bear, Stearns & Co., Inc.	0.33	1,000.00
03-27-08	03-28-08	04-25-08	Merrill Lynch Government Securities Inc.	0.33	10,000.00
04-03-08	04-04-08	05-02-08	Morgan Stanley & Co. Incorporated	0.16	2,000.00
04-03-08	04-04-08	05-02-08	Merrill Lynch Government Securities Inc.	0.16	4,000.00
04-03-08	04-04-08	05-02-08	BNP Paribas Securities Corp.	0.16	5,000.00
04-03-08	04-04-08	05-02-08	Deutsche Bank Securities Inc.	0.16	5,000.00
04-03-08	04-04-08	05-02-08	Barclays Capital Inc.	0.16	400
04-03-08	04-04-08	05-02-08	Countrywide Securities Corporation	0.16	1,000.00
04-03-08	04-04-08	05-02-08	Citigroup Global Markets Inc.	0.16	4,600.00
04-03-08	04-04-08	05-02-08	J.P. Morgan Securities LLC	0.16	3,000.00
04-10-08	04-11-08	05-09-08	Deutsche Bank Securities Inc.	0.25	2,500.00

Spreadsheet 6: Excerpt of Term Securities Lending Facility Data[108]

108. *See id*.

6. Primary Dealer Credit Facility

The PDCF can be characterized as a repo with a lowered standard.[109] Unlike a standard repo that requires treasury collateral, the PDCF program allowed primary dealers to post investment-grade securities (or, later, an even wider range of securities) as collateral in order to borrow money on an overnight basis.[110] PDCF was introduced in March 2008, and was created under Section 13(3) of the Act.[111] The program ended successfully on February 1, 2010, with all loans repaid in their entirety and with interest.[112]

With the data provided by the Fed,[113] the gain was calculated by using two parameters: the loan amount and the interest rate. Since each loan was borrowed for only one day, the daily amount of return can be calculated by multiplying the loan amount and the interest rate. Since the interest rate is provided as an annual rate, the resulting product should be divided by 365. In sum, the total gain from the PDCF is approximately **$375.807 million**.

Date	Borrower	Loan Amount (millions of dollars)	Interest Rate (%)
03-17-08	Barclays Capital Inc.	2,000.0	3.25
03-17-08	Bear, Stearns & Co., Inc.	28,000.0	3.25
03-17-08	Countrywide Securities Corporation	1,525.0	3.25
03-17-08	Deutsche Bank Securities Inc.	500.0	3.25
03-17-08	Morgan Stanley & Co. Incorporated	2,000.0	3.25
03-17-08	BNP Paribas Securities Corp.	500.0	3.25
03-18-08	Bear, Stearns & Co., Inc.	27,500.0	2.50
03-18-08	Citigroup Global Markets Inc.	500.0	2.50
03-18-08	Countrywide Securities Corporation	1,000.0	2.50

109. "A repurchase agreement (repo) is a form of short-term borrowing for dealers in government securities. The dealer sells the government securities to investors, usually on an overnight basis, and buys them back the following day." *Repurchase Agreement – Repo*, INVESTOPEDIA, http://www.investopedia.com/terms/r/repurchaseagreement.asp [https://perma.cc/4WL9-M4Z4].

110. *See Primary Dealer Credit Facility (PDCF)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_pdcf.htm [https://perma.cc/2Y95-Y55H] (last updated Feb. 12, 2016).

111. *See id.*

112. *See id.*

113. *See id.*

03-18-08	Goldman, Sachs & Co.	100.0	2.50
03-18-08	Lehman Brothers Inc.	1,606.0	2.50
03-18-08	Bear, Stearns & Co., Inc.	25,000.0	2.50
03-18-08	Citigroup Global Markets Inc.	500.0	2.50
03-19-08	Countrywide Securities Corporation	1,000.0	2.50
03-19-08	Lehman Brothers Inc.	2,300.0	2.50
03-20-08	Barclays Capital Inc.	1,000.0	2.50
03-20-08	Bear, Stearns & Co., Inc.	25,500.0	2.50
03-20-08	Citigroup Global Markets Inc.	1,500.0	2.50

Spreadsheet 7: Primary Dealer Credit Facility Data Excerpt

7. Temporary Liquidity Guarantee Program

Through providing governmental guarantees to depository banks, the Temporary Liquidity Guarantee Program ("TLGP") functioned to mitigate the deposit accounts' loss.[114] Announced by the FDIC on October 14, 2008, the TLGP consisted of two parts: the Transaction Account Guarantee Program ("TAGP") and the Debt Guarantee Program ("DGP").[115] The TAGP guaranteed noninterest-bearing accounts of depository banks.[116] The DGP guaranteed senior unsecured debt issued by depository banks or bank holding companies.[117] By providing these governmental guarantees, this program restored stability in the financial market and rebuilt customers' faith in financial products.[118] According to the FDIC, the TLGP produced a net profit of **$9.3 billion** from the collected fees in excess of the paid losses.[119] Through the TAGP, the FDIC collected $1.2 billion for fees, and the estimated total losses were $2.1 billion; in the DGP, the FDIC collected $10.4 billion in fees and paid $153 million in losses.[120]

114. *See Temporary Liquidity Guarantee Program*, FDIC, https://www.fdic.gov/regulations/resources/tlgp/ [https://perma.cc/W9JK-E866] (last updated Feb. 27, 2013).
115. *See id*.
116. *See id.*
117. *See id.*
118. *See* Walker, *supra* note 17, at 687-88.
119. *See Temporary Liquidity Guarantee Program, supra* note 114.
120. *See id.*

8. The Bank Investment Programs Under TARP

Unlike other facilities that provided liquidity in exchange for collateral, TARP's Bank Investment Programs provided liquidity in exchange for equity (preferred stock) in financial institutions.[121] The U.S. Treasury invested approximately $245 billion across five distinct bank programs, the biggest of which were the Asset Guarantee Program ("AGP"), the Capital Purchase Program ("CPP"), and the Targeted Investment Program ("TIP").[122] Pursuant to data provided by the Treasury, as of October 2016, the Treasury made a $30.1 billion profit in addition to the full recovery of its original investment.[123]

a. Asset Guarantee Program

Conducted jointly by the Treasury, Fed, and the FDIC, the AGP intended to rescue institutions whose failure would severely impact the financial system at large.[124] Pursuant to the AGP agreement, the AGP would share a portion of these institutions' asset losses in exchange for warrants and dividend-paying preferred stock.[125] Participating institutions that wanted to terminate early were charged a termination fee.[126] Two financial institutions participated in the AGP: Bank of America and Citigroup.[127] According to the Treasury, Bank of America ended up terminating negotiations before the finalization of the agreement, paying a termination fee of $425 million.[128] Since none of the TARP funds were spent, this termination fee was a pure gain for the program.[129]

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121. *See Bank Investment Programs*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/Pages/default.aspx [https://perma.cc/7UB9-ENEJ] (last updated Nov. 15, 2016). The core part of these programs was to fund these institutions through buying their preferred stock. *See infra* Sections II.A.8.a, II.A.8.b and II.A.8.c.

122. *See Bank Investment Programs*, *supra* note 121.

123. *See id*.

124. *See Asset Guarantee Program*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/agp/Pages/default.aspx [https://perma.cc/7ENF-JJLY] (last updated Dec. 9, 2013).

125. *See id*.

126. *See id*.

127. *See id*.

128. *See id*.

129. *See id*.

In January 2009, under the AGP the government agreed to share losses on Citigroup's $301 billion assets in exchange for $7.1 billion worth of Citigroup's preferred stock.[130] This guarantee was terminated in December 2009, which resulted in the Treasury and FDIC keeping $5.3 billion of the preferred stock that was ultimately sold for $2.76 billion.[131] The $2.76 billion represented a net gain, since Citigroup did not claim any loss.[132] The AGP overall led to a total gain of $3 billion.[133]

b. Capital Purchase Program

The CPP was established to provide direct capital to financial institutions in exchange for preferred stock or debt securities.[134] This was the largest initiative under TARP and by the end of the investment period, the Treasury's total investment amounted to $204.9 billion.[135] Under this program, 707 financial institutions received capital, averaging $301.3 million per institution.[136]

The preferred stock that the Treasury received under this program generated a 5% dividend for the first five years and a 9% dividend afterwards.[137] The Treasury had received $226.7 billion from this program as of October 31, 2016.[138] As of September 30, 2016, the CPP had generated another $12 billion from dividends and interest.[139] As a

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130. *See id*.
131. *See id*.
132. *See id*.
133. *See id*.
134. *See Capital Purchase Program: Program Purpose & Overview*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/cap/Pages/overview.aspx [https://perma.cc/S3E2-N8C7] (last updated Oct. 16, 2015).
135. *See Capital Purchase Program: Program Status*, U.S. DEP'T OF THE TREASURY https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/cap/Pages/payments.aspx [https://perma.cc/RGK9-EM6Y] (last updated Nov. 16, 2016).
136. *See id*.
137. *See Capital Purchase Program: Program Purpose & Overview*, *supra* note 135.
138. *See id*.
139. *See* SEPTEMBER 2016 DIVIDEND AND INTEREST REPORT, U.S. DEP'T OF THE TREASURY (2016), https://www.treasury.gov/initiatives/financial-stability/reports/Documents/September%202016%20Dividend_Interest%20Report.pdf [https://perma.cc/8A7D-4C5Q].

result, the net profit as of that date totaled **$33.8 billion**.[140] This program is still open and reports its status on a monthly basis to Congress.[141]

c. Targeted Investment Program

The TIP was created to specifically assist financial institutions that possess important roles in the financial market.[142] Under this program, the Treasury's $20 billion total investment was allocated between Bank of America and Citigroup.[143] Similar to the conditions under CPP, the Treasury received preferred stock, as well as warrants to purchase common stock in exchange for the investment.[144] The preferred stock received under this program generated an 8% dividend, even higher than the 5% dividend under the CPP.[145]

According to the Treasury, the investment was fully repaid by December 2009, resulting in a $3 billion dividend.[146] With the end of this program, the overall return has reached **$4.4 billion**.[147]

B. DEAL FACILITATION

1. Bear Stearns-JP Morgan Bridge Loan

As one of the biggest securities firms, Bear Stearns had a large presence in various financial sectors, rendering it a vital player in the financial market.[148] The turmoil of the financial markets starting in 2007

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140. This amount is calculated as follows: $226.7 billion - $204.9 billion + $12 billion = $33.8 billion.

141. *See Monthly Report to Congress*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/reports/Pages/Monthly-Report-to-Congress.aspx [https://perma.cc/QZ58-D5BS].

142. *See Targeted Investment Program*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/bank-investment-programs/tip/Pages/overview.aspx [https://perma.cc/69R5-MEZG] (last updated Dec. 9, 2013).

143. *See id*.

144. *See id*.

145. *See id*.

146. *See id*.

147. *See id*.

148. *See Bear Stearns, JPMorgan Chase, and Maiden Lane LLC*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_bearstearns.htm [https://perma.cc/G3CK-L46B] (last updated Feb. 12, 2016).

caused the rapid collapse of the firm's financial condition, bringing it to the brink of default in March 2008.[149] To prevent potential interruption in the credit markets, the Fed authorized the FRBNY to lend Bear Stearns $12.9 billion secured by Bear Stearns' $13.8 billion assets and charged with a 3.5% interest rate.[150] On March 17, 2008, Bear Stearns repaid the loan in its entirety.[151] According to the Fed's website resource, the Fed made a net profit of nearly **$4 million** through this 3-day loan.[152]

Loan date	03-14-08
Repayment date	03-17-08
Loan amount (billions of dollars)	12.9
Interest rate (%)	3.50
Total collateral (billions of dollars)	13.8
Collateral by Asset Type	
Collateralized mortgage obligations (CMO) (billions of dollars)	5.4
Other asset-backed securities (ABS) (billions of dollars)	1.6
Municipal securities (billions of dollars)	0.7
Other securities and equity (billions of dollars)	6.1

Spreadsheet 8: Bridge Loan to Bear Stearns Through JPMorgan Chase Bank.[153]

2. Maiden Lane LLC

Despite receiving the loan on March 14, 2008, Bear Stearns' situation worsened, prompting an acquisition for which JPMorgan Chase appeared to be the only viable bidder.[154] In light of the pressing need of acquisition, Maiden Lane LLC was created to smooth the deal.[155] The FRBNY lent $29 billion to Maiden Lane LLC to purchase Bear Stearns' assets, for which the FRBNY charged a primary credit rate.[156] Pursuant to

149. *See id.*
150. *See id.*
151. *See id.*
152. *Id.* The exact amount of gain is $3,710,958.90.
153. *See id.*
154. *See id.*
155. *See id.*
156. *See id.*

the website resource of the FRBNY, the Fed made a gain of **$765 million** from the $29 billion loan.[157]

C. One-off Bailouts to Financial Institutions

1. Fannie-Freddy Bailout

On September 17, 2008, Congress bailed out two mortgage giants, Fannie Mae and Freddie Mac, which had become nearly the only sources of loans for American homeowners.[158] The Treasury invested $187.5 billion in exchange for senior preferred stock that paid a 10% dividend, as well as common stock warrants representing a 79.9% ownership.[159] According to *Bloomberg* news, as of November 30, 2016, the Treasury had received more than $250 billion from the two firms, generating **$62.5 billion** of gain for U.S. taxpayers.[160]

2. AIG Revolving Credit Facility

American International Group ("AIG") faced significant liquidity problems in 2008 and was unable to obtain adequate funding from short-term funding markets.[161] If AIG had failed, the recession could have gotten worse.[162] To avert AIG's impending failure, the Fed established a revolving credit facility on September 16, 2008.[163] The initial agreement provided AIG liquidity in the amount of $85 billion, charged by an

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157. *See Maiden Lane Transactions*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/markets/maidenlane.html [https://perma.cc/2AFK-QSPP].

158. *See* Kimberly Amadeo, *What Was the Fannie Mae and Freddie Mac Bailout?*, BALANCE (Aug. 11, 2016), https://www.thebalance.com/what-was-the-fannie-mae-and-freddie-mac-bailout-3305658 [https://perma.cc/5LG6-Z7TL].

159. *See Federal Takeover of Fannie Mae and Freddie Mac*, WIKIPEDIA.ORG, https://en.wikipedia.org/wiki/Federal_takeover_of_Fannie_Mae_and_Freddie_Mac [https://perma.cc/98F3-NZ8J].

160. *See* Joe Light, *Fannie and Freddie Should Exit Government Grip, Mnuchin Says*, BLOOMBERG (Nov. 30, 2016), https://www.bloomberg.com/news/articles/2016-11-30/fannie-and-freddie-should-exit-government-s-grip-mnuchin-says [https://perma.cc/TP9Z-YHR2].

161. *See American International Group (AIG), Maiden Lane II and III*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/regreform/reform-aig.htm [https://perma.cc/F562-RSP5] (last updated Feb. 12, 2016).

162. *See id.*

163. *See id.*

interest rate equaling 850 basis points above the three-month LIBOR.[164] On November 10, 2007, the Fed and the Treasury restructured the AIG-related programs, through which AIG sold preferred stock and gained more favorable lending terms.[165] Through the restructuring, AIG sold $40 billion in preferred stock to the Treasury and $26 billion in preferred stock in two of its subsidiaries to the Fed.[166] Meanwhile, the interest rate on its line of credit, outstanding and undrawn, was reduced.[167] Its overall line of credit, through the revolving credit facility, was also reduced to $35 million.[168]

On September 30, 2010, upon the new recapitalization agreement among AIG, the FRBNY, and the Treasury, the revolving credit facility program was terminated.[169] According to the Treasury, the Fed received a total loan repayment of $41.8 billion, making a positive return of $6.8 billion on its loans to AIG.[170]

3. AIG Securities Borrowing Facility

Anticipating the possible interruption of security-borrowing by AIG's counterparties, in October 2008 the FRBNY was authorized to temporarily function as such a counterparty, and was allowed to use cash collateral to borrow investment-grade securities from AIG.[171] After the

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164. *See id.* The LIBOR is "a benchmark rate that some of the world's leading banks charge each other for short-term loans." ***LIBOR***, INVESTOPEDIA, http://www.investopedia.com/terms/l/libor.asp [https://perma.cc/LMM8-BYGY]. It stands for IntercontinentalExchange London Interbank Offered Rate and serves as the first step to calculating interest rates on various loans throughout the world. *Id.*

165. *See American International Group (AIG), Maiden Lane II and III*, *supra* note 161.

166. *See id*.

167. *See id*.

168. *See id*.

169. *See id.*; *Actions Related to AIG*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/aboutthefed/aig [https://perma.cc/E6NH-E46L] ("On January 14, 2011, the New York Fed's assistance to AIG was terminated and its loans to AIG fully repaid. The New York Fed's exit was part of a comprehensive recapitalization announced in September 2010 and closed on January 14, 2011, by the company, the New York Fed, the Treasury Department and the AIG Credit Facility Trust.").

170. *See Investment in AIG*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/aig/Pages/status.aspx [https://perma.cc/3MN9-G4KM] (last updated Dec. 11, 2013).

171. *See Actions Related to AIG*, *supra* note 169.

creation of Maiden Lane II, the FRBNY ceased this temporary role, getting back all cash collateral.[172]

4. AIG Maiden Lane II and Maiden Lane III

In November 2008, under a restructuring of the government's financial support of AIG, the Fed and the Treasury created Maiden Lane II LLC ("ML II") and Maiden Lane III LLC ("ML III").[173] ML II was formed to purchase the residential mortgage-backed security ("RMBS") assets from AIG subsidiaries, while ML III was to purchase multi-sector collateralized debt obligations ("CDOs") of AIG.[174] The Fed lent $19.5 billion to ML II in the form of a senior loan at an interest rate of the one-month LIBOR plus 300 basis points.[175] The disposition of ML II assets was completed at the end of February 2012, from which the Fed received **$2.8 billion** net gain, in addition to the repayment of the principal.[176] The Fed invested $24.3 billion in ML III as a senior loan with an interest rate of the one-month LIBOR plus 100 basis points.[177] According to the FRBNY, the disposition of ML III assets was completed in September 2012, from which the Fed received **$6.6 billion** in net gain, in addition to the repayment of the principal amount.[178]

172. *See id.*

173. *See Maiden Lane Transactions*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/markets/maidenlane.html [https://perma.cc/3SLZ-JR2T] (click the "Maiden Lane II" and "Maiden Lane III" tabs in the table under the subheading "Historical Supplemental Survey Reports").

174. *See id.* (click the "Overview" tab in the table under the subheading "Historical Supplemental Survey Reports").

175. *See id.* (click the "Maiden Lane II" tab in the table under the subheading "Historical Supplemental Survey Reports").

176. *See id.* (click the "Overview" tab in the table under the subheading "Historical Supplemental Survey Reports").

177. *See id.* (click the "Maiden Lane III" tab in the table under the subheading "Historical Supplemental Survey Reports").

178. *See id.* (click the "Overview" tab in the table under the subheading "Historical Supplemental Survey Reports"); *Actions Related to AIG*, *supra* note 169 ("The New York Fed's management of the MLII and MLIII portfolios resulted in the full repayment of the New York Fed's loans . . . and resulted in a combined net gain of approximately $9.4 billion . . . .").

5. Preferred Interest in AIA Aurora LLC and ALICO Holdings LLC

On December 1, 2009, the FRBNY received preferred stock in AIA Aurora LLC and ALICO Holdings LLC in exchange for the reduction of the outstanding amount under the revolving credit facility.[179] According to the FRBNY, the preferred interests generated an income of $26.4 billion, resulting in **$1.4 billion** in net gain.[180] As a result, the total net profit from the government's various investments in AIG stands at **$22.7 billion**.[181]

Date	Preferred interests in AIA Aurora LLC (millions of dollars)	Accrued dividends on preferred interests in AIA Aurora LLC (millions of dollars)	Preferred interests in ALICO Holdings LLC (millions of dollars)	Accrued dividends on preferred interests in ALICO Holdings LLC (millions of dollars)
12-02-09	16000.0	4.4	9000.0	2.5
12-09-09	16000.0	19.7	9000.0	11.1
12-16-09	16000.0	35.1	9000.0	19.7
12-23-09	16000.0	50.4	9000.0	28.4
12-30-09	16000.0	65.8	9000.0	37.0
01-06-10	16067.9	13.2	9038.2	7.4

Spreadsheet 9: Excerpt of Preferred Interest in AIA Aurora LLC and ALICO Holdings LLC Transaction Data [182]

	Max Combined Commitment (billions of dollars)	Repayments, Canceled/Reduced Commitments, Interest/Fees/Gains (billions of dollars)	Positive Return (billions of dollars)
Federal Reserve	**$112.5**	**$130.2**	**+$17.7**
Fed Loans to AIG¹	$35.0	$41.8	+$6.8
AIA/ALICO SPV, Preferred Interests	$25.0	$26.4	+$1.4

179. *See American International Group (AIG), Maiden Lane II and III*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/regreform/reform-aig.htm [https://perma.cc/V7KY-YWH5] (last updated Feb. 12, 2016).

180. *See Investment in AIG*, *supra* note 170.

181. *See id*.

182. *See American International Group (AIG), Maiden Lane II and III*, *supra* note 161.

Maiden Lane II & III	$52.5	$62.0	+$9.5
Treasury	**$69.8**	**$74.8**	**+$5.0**
Common Stock	$47.5	$51.6	+$4.1
Preferred Stock	$22.3	$23.2	+$0.9
Total	**$182.3**	**$205.0**	**+$22.7**

Table 1: Summary of Investment in AIG [183]

D. GENERAL MARKET SUPPORT

The government employed various mechanisms to restart the markets for both short-term and long-term credit.

1. Credit Market Programs Under TARP

The Credit Market Programs under TARP were established to restart the credit market for small business and consumer lending.[184] Under the general goal of stimulating the credit market, three different programs were created to achieve specific missions: the Public-Private Investment Program ("PPIP"), the SBA 7(a) Securities Purchase Program, and the TALF.[185]

a. The Public-Private Investment Program

The PPIP was created by the Treasury to restore the market for non-agency RMBS and commercial mortgage-backed securities ("CMBS").[186] These types of securities were central to the problems of the U.S. financial system but could not be addressed by other bailout programs.[187] According to the Treasury website resource, in addition to the full recovery of the Treasury's $18.6 billion investment, this program

183. *See Investment in AIG*, *supra* note 170.

184. *See Credit Market Programs*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/Pages/default.aspx [https://perma.cc/N5NX-VHCP] (last updated Aug. 13, 2015).

185. *See id.*

186. *See Public-Private Investment Program: Program Purpose & Overview*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/ppip/Pages/purpose-and-overview.aspx [https://perma.cc/J3Z2-MD7U] (last updated July 21, 2012).

187. For instance, the TSLF focuses on agency securities and agency mortgage-backed securities; the ST OMO only addresses agency mortgage-backed securities.

generated a net positive return of more than **$3.9 billion** in interest and proceeds.[188]

b. SBA 7(a) Securities Purchase Program

The SBA 7(a) loan refers to the type of loan specifically used to finance small business.[189] Accordingly, purchasing securities backed by SBA 7(a) loans becomes an indirect way of providing liquidity to the small businesses.[190] To help small businesses survive the crisis, the SBA 7(a) Securities Purchase Program purchased SBA 7(a) securities worth $368 million, effectively reviving the SBA 7(a) market to its pre-crisis levels.[191] With the end of this program on January 24, 2012, the Treasury made a total return of **$9 million**.[192]

c. The Term Asset-Backed Securities Loan Facility

As a provider of long-term credit, the asset-backed securities ("ABS") market experienced a tremendous hit during the crisis.[193] Activity in the ABS market halted in the fourth quarter of 2008 because traditional ABS investors could no longer find leverage "from the conduits, securities lenders, and other entities" necessary for investors with certain risk-return profiles.[194]

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188. *See Public-Private Investment Program*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/ppip/Pages/default.aspx [https://perma.cc/M5EQ-HYP3] (last updated July 13, 2015).

189. *SBA 7(a) Securities Purchase Program*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/sba7a/Pages/Program-Purpose-And-Overview.aspx (last updated Dec. 9, 2013).

190. *See id*.

191. *See SBA 7(a) Securities Purchase Program*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/sba7a/Pages/default.aspx [https://perma.cc/VC3S-ZABK] (last updated Dec. 9, 2013).

192. *See SBA 7(a) Securities Purchase Program: Program Status*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/sba7a/Pages/Program-Status.aspx [https://perma.cc/MK64-UWC8] (last updated Dec. 9, 2013).

193. *See* Madigan, *supra* note 6.

194. *See id*.

Since the ABS market functioned as the center of originations of loans, its malfunction directly threatened the availability of other types of financing.[195] To reinstate the ABS market, the Fed and the Treasury jointly created the TALF in March 2009 under the Fed's authority as granted by Section 13(3) of the Act.[196] By allowing borrowers to use their ABS as collateral, the TALF essentially facilitated the issuance of ABS collateralized by other types of loans.[197] To avoid lending directly to borrowers, the Fed created the TALF LLC, a special purpose vehicle, to which the Treasury provided a subordinated loan.[198] The TALF loans provided by the FRBNY were secured by collaterals, which could be sold to TALF LLC in case of the borrower's default.[199] The Treasury provided $1.4 billion to the TALF LLC, and all loans have since been repaid in full.[200] In addition, the distributions made by the TALF LLC to the Treasury and the FRBNY amounted to **$745.7 million**, which represents the net positive return as of the date of this Comment.[201]

2. Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility

During the financial crisis, investors who lost confidence in the markets rushed to redeem funds from money market mutual funds ("MMMF"), driving a fire sale of MMMFs.[202] A part of the MMMFs' assets consisted of asset-backed commercial papers ("ABCPs").[203]

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195. *See id*.

196. *See Term Asset-Backed Securities Loan Facility*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/markets/talf.html [https://perma.cc/FWY7-4XC2].

197. *See id.*

198. *See id*.

199. *See Term Asset Backed Loan Facility: Program Purpose & Overview*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/talf/Pages/Program-Purpose-And-Overview.aspx [https://perma.cc/J6WY-CJHJ] (last updated Dec. 9, 2013).

200. *See Term Asset Backed Loan Facility: Program Status*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/credit-market-programs/talf/Pages/Program-Status.aspx [https://perma.cc/WSB5-K5XN] (last updated Dec. 12, 2013).

201. *See id*.

202. *See Asset-Backed Commercial Paper Money Market Mutual Fund Liquidity Facility (AMLF)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/regreform/reform-amlf.htm [https://perma.cc/YYW7-5H6Y] (last updated Feb. 12, 2016).

203. *See id*.

Although ABCPs were generally considered a liquid asset, a potential bear market for ABCPs would have induced losses to MMMFs, which could have rippled outwards into the financial market at large.[204]

To alleviate the liquidity problem in the money markets, the AMLF functioned to create a market for the sale of ABCPs.[205] Under the AMLF, the Fed-provided loans were specifically directed for acquiring the ABCPs from MMMFs.[206] The purchased ABCPs also served as the collateral to secure the loans.[207] This program, created under the Fed's Section 13(3) authority, lasted from September 2008 to February 2010.[208] At the time of closing, all loans were repaid.[209]

Given the complete transaction data provided by the Fed,[210] the daily return can be calculated by multiplying the loan amount, interest rate, and the number of days for which the loan was made, then dividing by 365. Pursuant to this calculation, the total gain from the AMLF program was approximated **$543.497 million**.

Loan Date	Borrower	Loan Amount (millions of dollars)	Maturity Date	Interest Rate (%)
09-22-08	BK OF NY MELLON	1,051.7	09-25-08	2.25
09-22-08	BK OF NY MELLON	777.6	01-12-09	2.25
09-22-08	BK OF NY MELLON	624.3	10-06-08	2.25
09-22-08	BK OF NY MELLON	569.5	01-13-09	2.25
09-22-08	BK OF NY MELLON	544.7	01-16-09	2.25
09-22-08	BK OF NY MELLON	499.2	01-14-09	2.25
09-22-08	BK OF NY MELLON	424.9	09-26-08	2.25
09-22-08	BK OF NY MELLON	377.6	12-11-08	2.25

Spreadsheet 10: Excerpt of AMLF Data[211]

204. *See id*.
205. *See id*.
206. *See id*.
207. *See id*.
208. *See id*.
209. *See id*.
210. *See id*.
211. *See id*.

3. Commercial Paper Funding Facility

In connection with the AMLF, the CPFF functioned to further boost the liquidity in money markets.[212] Through financing the purchase of certain types of commercial paper, the CPFF enabled liquidity to reach both non-financial and financial issuers of commercial paper.[213] This facility operated through the purchase of commercial papers by the CPFF LLC, with loans provided by the FRBNY.[214] Further, the issuers of commercial paper who benefited from this program were asked to pay a fee.[215] This program, created pursuant to the Fed's authority under Section 13(3), lasted from October 2008 to February 2010.[216] All loans were fully repaid to the FRBNY, and all commercial papers were repaid to the CPFF LLC.[217] With the available data, the total net return is calculated to be **$1.222 billion**.[218]

Loan date	Maturity date	Interest rate (%)	Loan amount (millions of dollars)
10-27-08	01-26-09	1.50	52,681.2
10-28-08	01-26-09	1.50	35,540.3
10-29-08	01-27-09	1.50	56,556.0
10-30-08	01-28-09	1.00	41,221.7
10-31-08	01-29-09	1.00	40,472.9
11-03-08	01-30-09	1.00	8,891.0
11-04-08	02-02-09	1.00	2,086.7

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212. *See Press Release: Board Announces Additional Details Regarding the Commercial Paper Funding Facility (CPFF)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS. (Oct. 14, 2008), https://www.federalreserve.gov/newsevents/press/monetary/20081014b.htm [https://perma.cc/6VXV-7Q5R].

213. *See Commercial Paper Funding Facility*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/monetarypolicy/cpff.htm [https://perma.cc/Y9MK-GZVA] (last updated Feb. 5, 2010).

214. *See Commercial Paper Funding Facility (CPFF)*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_cpff.htm [https://perma.cc/W7QK-YRLT] (last updated Feb. 12, 2016).

215. *See id.*

216. *See id*; *Commercial Paper Funding Facility: Frequently Asked Questions*, FED. RESERVE BANK OF N.Y., https://www.newyorkfed.org/markets/cpff_faq.html [https://perma.cc/X35C-NMB7].

217. *See Commercial Paper Funding Facility (CPFF)*, *supra* note 214.

218. Similar to previous calculations, the gain from each single transaction is computed by multiplying the loan amount, interest rate, and number of days, and then dividing by 365.

11-05-08	02-03-09	1.00	5,674.3
11-06-08	02-04-09	1.00	1,032.5
11-07-08	02-05-09	1.00	2,579.1
11-10-08	02-09-09	1.00	6,315.5
11-12-08	02-10-09	1.00	3,886.2
11-13-08	02-11-09	1.00	3,620.2
11-14-08	02-12-09	1.00	3,167.4
11-17-08	02-17-09	1.00	2,971.5
11-18-08	02-17-09	1.00	1,190.3
11-19-08	02-17-09	1.00	2,460.3

Spreadsheet 11: Excerpt of Loans to the CPFF LLC Data[219]

Total discount rate + Credit enhancement surcharge (%)	Issuer name
3.89	AMSTEL FUNDING CORP
2.88	BTM CAPITAL CORP
2.88	BANCO ESPIRITO SANTO NA
3.88	BAVARIA UNIVERSAL FNDG
2.87	BAYERISCHE LANDESBK GIRO
3.87	BELMONT FUNDING LLC
2.88	CGD N AMER FINANCE LLC
3.87	CHESHAM FINANCE LLC
3.86	CROWN POINT CAPITAL CO
3.89	CHRYSLER FIN CONDUIT AUT
3.88	CHRYSLER FIN CONDUIT AUT
3.88	DEALERS CAPITAL ACCESS
2.87	DEXIA DELAWARE LLC
3.85	EBBETS FUNDING LLC
3.88	EBURY FINANCE LLC

Spreadsheet 12: Excerpt of the Purchase of Commercial Paper Data[220]

4. Agency Mortgage-Backed Securities Purchase Program

To stabilize the long-term interest rate and thereby stimulate the market for long-term securities, the Fed decided to increase its holdings

219. *See Commercial Paper Funding Facility (CPFF), supra* note 214.
220. *See id.*

of MBS.[221] To achieve this goal, the Fed created the Agency MBS Purchase Program in November 2008 pursuant to its authority under Section 14 of the Act.[222] When the purchasing of MBS concluded in March 2010, the Fed acquired agency MBS totaling $1.25 trillion.[223] Because any liquidation of the MBS portfolio would potentially disrupt the housing market, the Fed intends to hold the MBS until its maturity date.[224] This program is currently making a profit through the generated interest.[225]

Since the Fed has not made the detailed transaction data officially available, the gain is calculated based on data from the Bloomberg terminal.[226] The total gain of the Agency MBS Purchase Program is the sum of total "interest amount" and the total "mark to market PNL."[227] The interest amount is calculated by multiplying the total trade amount,[228] interest rate, and the number of days, and then dividing by 365. Because this program is still ongoing, the gain or loss should be estimated by the "mark to market PNL," a more realistic appraisal of this program's current position. The "mark to market PNL" is calculated by the difference in last price and purchase price divided by the purchase price, then multiplied by the total trade amount. Pursuant to my calculation, the total gain of this program is approximately **$536 billion**.

Total (millions of dollars)	Purchase price	Interest (%)	Number of days	Last Price	Interest Amount (millions of dollars)	Mark to Market PNL (millions of dollars)
250	101.17	5.00	2643.00	110.203125	90.51369863	22.3216492
150	97.17	3.50	2671.00	105.83	38.41849315	13.36542914
350	97.82	3.50	2736.00	105.08	91.82465753	25.96957422
42	96.81	3.50	2674.00	105.52	10.76926027	3.776843818

221. *See Agency Mortgage-Backed Securities (MBS) Purchase Program*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/reform_mbs.htm [https://perma.cc/8U4R-AGPG] (last updated Feb. 12, 2016).

222. *See id.*

223. *See id.*

224. *See* LABONTE, *supra* note 12, at 19.

225. *See id*.

226. Although the government released the original CUSIP and purchase price, the data does not include the current market price, and the CUSIP has been reused. My data source is Bloomberg terminal. The complete data is attached as Appendix 2.

227. PNL is an acronym for Profit and Loss.

228. The total trade amount stands for the total face value at the time of the trade when the securities are purchased or sold.

200	91.50	3.50	2643.00	105.48	50.68767123	30.56693989
1450	102.36	4.00	2484.00	103.44	394.7178082	15.30892244
1275	102.26	4.00	2819.00	103.41	393.8876712	14.35352641
2475	101.61	4.00	2792.00	104.02	757.2821918	58.59582595
1800	100.77	4.00	2762.00	104.11	544.8328767	59.64944924
2500	101.26	4.00	2730.00	103.86	747.9452055	64.17576042

Spreadsheet 13: Excerpt of MBS Data[229]

E. THE BAILOUT OF THE AUTO INDUSTRY

The Automotive Industry Financing Program ("AIFP") was invented to help the U.S. auto industry avert its imminent failure.[230] The Treasury invested approximately $80 billion through the AIFP, under which Chrysler received $12.5 billion, GM received $51 billion, and Ally Financial received $17.2 billion.[231] Chrysler repaid more than $11.2 billion of the $12.5 billion committed loan in May 2011; thereafter the Treasury fully exited its investment in Chrysler.[232] On December 9, 2013, the Treasury fully exited its investment in GM, recovering $39.7 billion from its original investment of $51.0 billion.[233] On December 19, 2014, the Treasury sold all of its holding in Ally Financial, making a positive return of about $2.4 billion.[234] In sum, the bailout of auto industry resulted in a total loss of **$10.2 billion.**[235]

229. *See infra* Appendix 2.
230. *See Auto Industry*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/automotive-programs/Pages/default.aspx [https://perma.cc/HB64-RMFR] (last updated Jan. 8, 2015).
231. *See id.*
232. *See Auto Industry: Program Status*, U.S. DEP'T OF THE TREASURY, https://www.treasury.gov/initiatives/financial-stability/TARP-Programs/automotive-programs/Pages/purpose.aspx [https://perma.cc/X9YE-XAJ7] (last updated Dec. 22, 2014).
233. *See id.*
234. *See id.*
235. *See id.*

	Repay Date	Loan amount (billions of dollars)	Pay amount (billions of dollars)	P&L (billions of dollars)
Chrysler	05/11	12.5	11.2	(1.3)
GM	12/9/13	51	39.7	(11.3)
Ally Financial	12/18/14	17.2	19.6	2.4
Total		80.7	70.5	(10.2)

Table 2: AIFP

III. BAILOUT IS THE CORRECT AND EFFECTIVE SOLUTION

This part provides a three-part analysis of the 2007-08 bailout programs. First, by summarizing the gain or loss along with the rate of return for all the bailout programs, this part lays a foundation for assessing which programs can be considered good investments of taxpayer money. Secondly, by evaluating how well the bailouts complied with Bagehot's dictum, this part sheds light on the ongoing discussion regarding the necessary innovations in applying the dictum. Finally, in light of the amendments made by Dodd-Frank regarding the government's bailout powers, this part analyzes how relevant provisions of Dodd-Frank will impact the creation of similar programs in the future.

A. THE 2007-08 BAILOUTS WERE GOOD INVESTMENTS

Program	Total Return (Billions of dollars)	Total Days	Total Return (%)	Annual Return (%)
Modified Discount Window	0.978	1246	0.003	0.001
TAF	4.150	840	0.109	0.047
Central Bank Liquidity Swap	5.747	905	0.057	0.023
ST OMO	1.259	324	0.147	0.166
TSLF	0.699	504	0.035	0.025
PDCF	0.376	242	0.004	0.006
TLGP	9.300			
AGP	3.185	365	1.058	1.058
TIP	4.400	365	22.000	22.000
CPP (Ongoing)	33.800	2803	10.627	1.324
Bear Stearns- JP Morgan	0.004	3	0.031	3.844

Maiden Lane LLC	0.765	1553	2.656	0.618
Fannie-Freddy	62.500	2407	21.333	2.976
AIG Revolving Credit	6.800	744	8.000	3.848
AIG Security Borrowing	0.051	44	0.006	0.052
Maiden Lane II	2.800	1237	14.359	4.038
Maiden Lane III	6.600	1420	27.160	6.371
AIA Aurora LLC ALICO	1.400	357	5.600	5.729
PPIP	3.900	2017	17.727	2.997
SBA 7(a) Security Purchase	0.009	694	2.446	1.279
TALF	0.746	486	53.264	37.807
AMLF	0.543	386	0.250	0.236
CPFF	1.222	546	0.165	0.111
Agency MBS	536	2971	42.880	4.481
AIFP	-10.200	2269	-12.639	-2.150
Total (Without Agency MBS)	**141.5700742**			
Total (With Agency MBS)	**677.5700742**			

Table 3: Summary of Gain/Loss and Rate of Return of Each Bailout Program

Table 3 provides a summary of the dollar amount of gain or loss, as well as the rate of return for all of the bailout programs since 2008. Almost all programs (with the one exception of the Auto Industry Bailouts) had a positive return. The total positive return of the Agency MBS is about **$677 billion**, while the total without the Agency MBS is about **$141 billion**.[236] To guarantee a more accurate evaluation, this Comment prefers to choose the total without Agency MBS as the basis for assessing the final tally of all the bailout programs. The exclusion of the Agency MBS is based on the uncertainty both in its calculation and categorization. The uncertainty in calculation stems from the unavailability of the complete data, as the original MBS portfolio has not fully liquidated yet. Because the currently available data cannot clearly tell whether the original MBS is paid in advance or not, the calculation of the gain from the MBS program is based on the theoretic PNL, which might also cause an overestimation of the actual interest amount. The uncertainty in categorization lies in the

236. This number is close to the projected returns of $166 billion by Timothy Geithner. *See* TIMOTHY F. GEITHNER, STRESS TEST: REFLECTIONS ON FINANCIAL CRISES 497 (Broadway Books, 2015).

ongoing discussion about whether the MBS program is an exercise of monetary policy, rather than a bailout.[237] Unlike a bailout program that provides liquidity on a temporary basis, a monetary policy is a long-term strategy that focuses on controlling the quantity of money in circulation through the buying and selling of securities.[238] By purchasing the MBS from primary dealers, the Fed intended to increase the money supply with a long-term goal of increasing lending and stimulating the economy.[239] The fact that the Fed intends to hold the MBS until their maturity date provides further grounds for characterizing this program as an exercise of monetary policy.[240] Even without the Agency MBS, the total positive return of **$141 billion** reassures the taxpayers not only that their money was not lost, but also that the programs generated billions of dollars in profits.

From an investor's perspective, the bailouts can be considered good investments of taxpayer money. While active investors—whose portfolios have high turnover rates—care about the annual rate of return, passive investors—i.e., the "buy and hold" investors—usually care more about the total percentage of return.[241] To accommodate the different information needs of the active and passive investors, Table 3 provides the rate of return both in the form of the total percentage return and the annual rate of return.[242]

To begin, passive investors will likely be impressed by programs that generated a total percentage of return of more than 10%.[243] As shown in

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237. *See* LABONTE, *supra* note 12, at 17-19 (clarifying that the purpose of holding the MBS portfolio was to lower the interest rate in the private borrowing market, thus stimulating interest-sensitive types of spending, such as on residential housing, automobiles, etc.).

238. *See id*.

239. *See id*.

240. *See id*. at 19 (stating that, in its normalization statement, the Fed ruled out MBS sales in the near future).

241. "Buy and hold is a passive investment strategy in which an investor buys stocks and holds them for a long period of time, regardless of fluctuations in the market." *Buy and Hold*, INVESTOPEDIA, http://www.investopedia.com/terms/b/buyandhold.asp [https://perma.cc/7VKL-4R2N]. An investor who buys and holds will generally ignore the short-term daily price movement once he/she gets into a position. *Id.*

242. Total percentage return is the return on investment, calculated as: net profit/total investment * 100. Annual rate of return is the annualized total percentage of return, calculated as: [(1 + total return) ^ 365 / total days - 1] * 100.

243. Index bond funds pay annual returns of much less. *See iShares Core U.S. Aggregate Bond ETF*, ISHARES, https://www.ishares.com/us/products/239458/ishares-

Table 3, these programs are: TIP (22%), CPP (10.62%), Fannie-Freddy (21.33%), Maiden Lane II (14.35%), Maiden Lane III (27.16%), PPIP (17.72%), and TALF (53.26%). For active investors, there are two programs with a significantly high annual rate of return that deserve to be highlighted: TIP (22%) and TALF (37.8%). A more in-depth analysis of the rate of return will require a comparison between the rate of return with the market rate at the time the investment was made. In a low liquidity market, such as the market during a financial crisis, finding a comparable benchmark rate is not easy because most market makers do not want to provide large firm quotes that would greatly affect the true value of the benchmark. As a result, the Fed Fund rate, with its continuing lending possibility, shall be chosen as the safe annualized comparable market rate in a low liquidity market. In that sense, a program with a rate of return that is higher than the Fed Fund rate should be considered a good investment. Referring to Fed Fund rates in Spreadsheet 1, consider the highest Fed Fund rate (5.02%) to simplify this comparison.[244] By using the highest Fed Fund rate, the annualized benchmark rate could be calculated easily. Because 5.02% represented the highest yield that a risk-free investment could produce,[245] for passive investors programs with a total percentage rate of more than 5.02% during that time can be considered a good investment: AIG Revolving Credit (8%) and AIA Aurora LLC ALICO (5.6%). For active investors who look at the annual rate, the list of good investments needs to include Maiden Lane III (6.371%) and AIA Aurora LLC ALICO (5.729%). Again, this Comment takes a rather conservative view in making such an assessment. The list of good investment programs ought to be more inclusive considering the fact that the Fed Fund rate after August 1, 2007 was much lower than 5.02%.[246] Also, to guarantee a more accurate evaluation, the Agency MBS with a total percentage return of 42.88% and annual rate of return of 4.48% has been excluded.

core-total-us-bond-market-etf [https://perma.cc/LGK4-54RB] (showing that the five-year annualized return is 2.27% and the ten-year annualized return is 4.14%).

244. *See supra* Section II.A.1, Spreadsheet 1. The Fed Fund Rate after August 1, 2007 has been much lower than 5.02%.

245. Fed Fund rate is generally considered the risk free rate.

246. Shown from both Spreadsheets, the Fed Fund rate after August 1, 2007 has always been lower than 5.02%. *See supra* Section II.A.1, Spreadsheet 1; *supra* Section II.A.2, Spreadsheet 2.

B. BAGEHOT'S DICTUM AND NECESSARY INNOVATION

In their broad structure, the 2007-08 bailout programs are consistent with the guiding principles of Bagehot's dictum.[247] Most of the financial institutions that received bailout lending were illiquid rather than insolvent,[248] the lending was generally secured by good collateral,[249] and the loans were charged with above-market interest rates.[250]

More importantly, the success of the 2007-08 bailouts demonstrated that Bagehot's dictum requires an evolving interpretation and flexible application.[251] For instance, Bagehot's dictum failed to anticipate the stigma of borrowing under the discount window, which was solved through the creation of TAF.[252] The complexity of the current financial structure and the presence of many gray areas render it impossible to draw a clear line in imposing each of the three criteria under the dictum.[253]

For instance, there might be a lack of clarity in distinguishing illiquidity from insolvency as the prolonged duration of illiquidity might cause a firm's ultimate insolvency.[254] As a result, applying the criteria of

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247. *See* Casey & Posner, *supra* note 7, at 523 ("[A] striking fact about the 2007-2008 rescues is that nearly all of them were ex post efficient . . . most of the rescues followed the Bagehot dictum: most of the financial institutions suffered liquidity shortages but were otherwise solvent; the loans to them were repaid in full.").

248. *See* Squire, *supra* note 18, at 105-09 (concluding that the private-sector financial institutions were solvent during the crisis by testing whether the bailed-out firms "ultimately generated enough profits to repay the government with interest while continuing to service their private debt").

249. As argued by Madigan, the collateral might take various forms: some programs apply a haircut to the market value of securities, for instance, the PDCF and TSLF; others might take a fee as security, for instance, the CPFF. *See* Madigan, *supra* note 6.

250. The evidence of the Fed charging above-market interest on loans might be direct or circumstantial. As direct evidence, programs charged with an interest rate that is higher than the comparable Fed Fund rate shall be deemed as having been charged with an above-market interest rate. Circumstantial evidence might be that when the usage of a particular program started to fall, it evidenced that the interest rate charged by that program was higher than the then-existing market rate, leaving no incentive for institutions to borrow from the bailout program. *See* Madigan, *supra* note 6 (reasoning that in examining the pricing of a particular program, the fact that the usage of a program has fallen to zero leads to a reasonable inference that the rate charged by that program was representing a penalty rate compared to the market rate at that point).

251. *See id.*

252. *See id.*

253. *See id*.

254. *See id.*; Bernanke, *supra* note 2.

"lending to solvent firms" would entail decision-making that weighs a firm's financial conditions against the consequence of that firm's possible default.[255] Moreover, the illiquidity and the fire sale caused by it could suppress the price of securities, causing difficulties in assessing the real value of "good collateral."[256] Further, the definition of a high rate might vary depending a particular firm's size and ability to borrow; also whether a rate represents a high rate needs to be analyzed in connection with other terms, e.g., the haircut applied on the securities.[257] Therefore, Bagehot's dictum shall be viewed more as a concept guiding the methodology of creating bailout mechanisms, rather than a straightforward application.[258]

In applying Bagehot's dictum in a crisis, some practical concerns, including the worsening of market panic and its potential adverse effects on the entire economy, would justify the necessary deviations. For instance, lending to broker-dealers through PDCF and TSLF might seem to be unconventional, but in light of the unprecedented market shock that could subject the housing market to trillions of dollars of loss, the intervention of a liquidity provider of last resort was the only viable way of preventing the market breakdown.[259] Moreover, lending to the auto industry might seem to deviate from the dictum, as the auto firms were not judged to be solvent.[260] Nonetheless, the consideration of preventing major layoffs provided their bailouts the necessary legitimacy.[261]

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255. *See* Madigan, *supra* note 6.

256. *See id.*

257. *See id.* ("[T]he haircuts set on the primary dealer facilities represented a generalization of the dictum to 'lend at a high rate.'").

258. *See id.* (arguing that a straightforward application of Bagehot's dictum is impractical and impossible due to the blurred boundary between illiquidity and insolvency, the uncertainty in valuing the collateral in the crisis, as well as the complicacy in setting the penalty rate that could accurately reflect the specific circumstances of a particular firm).

259. *See id*. (arguing that although the creation of these two lending programs might appear as unconventional because their facilities involved lending to non-depository institutions, given the size and the extent of the unprecedented market shock, this type of credit extension was absolutely necessary to prevent the breakdown of the entire economy).

260. *See* Casey & Posner, *supra* note 7, at 516 (concluding that the bailout of the auto industry was a true bailout because the auto firms had been determined insolvent).

261. *See id.* at 517 ("Even conservative estimates suggest that if viewed merely as a jobs program, the bailout was inexpensive.").

C. IMPACT OF DODD-FRANK

This Comment will focus on three aspects in which Dodd-Frank will likely impact the creation of bailout programs in the future. First, Dodd-Frank's enhanced disclosure requirement for the discount window will likely worsen the DW stigma. Second, Dodd-Frank's restriction on the FDIC's guarantee authority could render the financial system more vulnerable in a crisis. Lastly, Dodd-Frank's reduction of the Fed's emergency lending authority could constrain the Fed's exercise of its normal LOLR authority.

1. Title XI of Dodd-Frank and its Impact on Discount Window

Title XI of Dodd-Frank opens the discount window policy for audits, which, together with its imposition of greater disclosure requirements, would worsen the problem of the DW stigma. Use of the discount window is one of the Fed's most basic powers in monetary policy matters. To encourage its use, the Fed's decisions regarding the discount window are insulated from the audits of the Government Accountability Office ("GAO").[262] Even with this protective insulation, banks were still reluctant to borrow from the discount window due to the DW stigma,[263] as evidenced by the ineffectiveness of the Primary Credit Program (the Modified Discount Window).[264] Despite this stigma, Title XI[265] of Dodd-Frank imposes greater disclosure requirements on the Fed's lending activities.[266] Title XI of Dodd-Frank includes provisions that allow the GAO for the first time to audit open market operations, discount window lending, actions taken under the Fed's emergency authority, and programs

262. *See* The Federal Banking Agency Audit Act of 1978, Pub. L. No. 95–320, 92 Stat. 391 (prohibiting the GAO from auditing the Fed's activities relating to "monetary policy matters, including discount window operations, reserves of member banks, securities credit, interest on deposits, and open market operations").

263. *See supra* notes 76-77 and accompanying text.

264. *See* Madigan, *supra* note 7 (stating that the modified discount window appeared to have only limited success in stemming the panic as concerns about stigma discouraged many banks from drawing from the discount window credit).

265. Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, §§ 1101-1109, 124 Stat. 1376, 2113-2129 (codified as amended in scattered sections of 12 U.S.C.).

266. *See* MARC LABONTE, CONG. RESEARCH SERV., FEDERAL RESERVE: OVERSIGHT AND DISCLOSURE ISSUES 5 (2016).

created in response to the financial crisis.[267] These provisions require the Fed to release individual lending records for emergency facilities created during a financial crisis, revealing borrowers' identities and loans' terms.[268] In particular, the Fed must also release the individual records for discount window lending within two years of the transaction.[269] As a result of Dodd-Frank, on March 31, 2011, the Fed released individual lending records for emergency facilities revealing borrowers' identities for the first time;[270] the Fed also began to release the individual records for discount window and open market operations in the third quarter of 2012.[271]

Such enhanced disclosure requirements of identifying the borrowers will make the DW stigma even worse.[272] Because revealing borrowers' identities will likely weaken investors' confidence,[273] banks would rather borrow at a higher rate from sources that would not uncover their borrowing.[274] The magnitude of the DW stigma can be proven by evidence of banks' opportunity costs in avoiding the stigma during the crisis.[275] For instance, after the creation of the TAF, in which the auction format of fund lending helped protect borrowers' identities, banks were willing to pay $172 million more per auction for interest, rather than

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267. *See id*.

268. *See id*.

269. *See id*.

270. *See Fed Releases Discount-Window Lending Records Under Court Order*, WALL ST. PIT (Mar. 31, 2011), http://wallstreetpit.com/69221-fed-releases-discount-window-lending-records-under-court-order/ [https://perma.cc/B9UP-7JSY].

271. *See Federal Reserve Publishes Quarterly Data for Discount Window Lending and Open Market Transactions*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., https://www.federalreserve.gov/newsevents/press/monetary/20120928a.htm [https://perma.cc/D4Y6-5AEK] (last updated Sept. 28, 2012); *Quarterly Transaction Data*, BD. OF GOVERNORS OF THE FED. RESERVE SYS., http://www.federalreserve.gov/newsevents/reform_quarterly_transaction.htm [https://perma.cc/NZ79-GU3S] (last updated Dec. 28, 2012).

272. *See* BEN S. BERNANKE, THE COURAGE TO ACT: A MEMOIR OF A CRISIS AND ITS AFTERMATH 465 (W.W. Norton & Co., 2015) ("[A]lthough lagged disclosure is a lot better than immediate disclosure, the new disclosure requirements for discount window may still increase the stigma of borrowing from the Fed in a panic."); LABONTE, *supra* note 266, at 12-15.

273. *See* LABONTE, *supra* note 266, at 12-13.

274. *See id.*

275. *See* ARMANTIER, GHYSELS, SARKAR & SHRADER, *supra* note 77, at 4.

borrowing from the discount window.[276] Such opportunity cost, though significant, is totally justified in light of the destabilizing consequences of the DW stigma following the release of borrowing institutions' identities, as evidenced by the deposit runs during the Great Depression after the release of the Reconstruction Finance Corporation,[277] as well as by the "TARP stigma" after the release of the names of TARP recipients.[278] In balancing the purpose of the disclosure and its possible consequences, this "naming and shaming" type of disclosure appears to be unnecessarily aggressive.[279] Because a limited disclosure, meaning one that includes programs and activities but omits the identification of borrowers, could sufficiently serve the oversight purpose, the detailed identity disclosure that serves the mere purpose of discerning favoritism seems to be less valuable during a crisis.[280] In weighing such limited benefits against the potentially exacerbated DW stigma, the provisions of enhanced disclosure under Dodd-Frank call for further deliberation.

2. The "Systemic Risk Exception" and the Temporary Liquidity Guarantee Program

The FDIC's guarantee was viewed as one of the turning points of the crisis.[281] By standing behind the obligations of the banking system, the FDIC's guarantee prevented an all-out run on the financial system.[282] In creating the Temporary Liquidity Guarantee Program ("TLGP"), the FDIC evoked the "systemic risk exception" under the Federal Deposit Insurance Act's (the "FDIA") Section 13(c)(4)(G)(i).[283] Though guarantee of the senior unsecured debt issued by bank holding companies

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276. *See id.* ("[The banks] incurred an additional interest cost of $172 million per auction, resulting in a 7.5% increase in their interest payments and a decrease of 17 bps in their pre-tax return on assets (ROA).").

277. *See* LABONTE, *supra* note 266, at 13.

278. *See* ARMANTIER, GHYSELS, SARKAR & SHRADER, *supra* note 77, at 34 (noting that some institutions that accepted financial assistance through TARP "were subsequently branded as having 'TARP stigma'").

279. *See* LABONTE, *supra* note 266, at 13 (stating that the "naming and shaming" type of disclosure would be detrimental to financial stability).

280. *See id.*

281. *See* GEITHNER, *supra* note 236, at 230-31.

282. *See id.*

283. *See* 12 U.S.C. § 1823(c)(4)(G)(i) (2012); Walker, *supra* note 17, at 686.

has been deemed questionable,[284] the "systemic risk exception" did provide sound authorization for such a guarantee.[285] The decision to extend the FDIC's guarantee to the new unsecured debt of bank holding companies was made after deliberating about the appropriate boundaries of the FDIC's guarantee authority, and balancing that authority with the necessity of preventing runs on the most vulnerable parts of the banking system.[286] Despite the legitimacy of this program and the $9.3 billion profit made from it, Dodd-Frank significantly cut back the FDIC's authority with respect to the systemic risk exception by creating a hurdle that would make the creation of a similar debt guarantee program almost impossible in the future.[287] This hurdle was established through two steps. First, Dodd-Frank amended Section 13(c)(4)(G)(i) of the FDIA, limiting the use of "systemic risk exception" to only one scenario, i.e., for winding up a failed depository institution for which the FDIC has been appointed receiver.[288] Second, Dodd-Frank permits the FDIC to guarantee the additional obligations of solvent deposit banks during times of severe economic distress,[289] but simultaneously suspends the FDIC's parallel

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284. *See* U.S. GOV'T ACCOUNTABILITY OFF., GAO-10-100, REGULATORS' USE OF SYSTEMIC RISK EXCEPTION RAISES MORAL HAZARD CONCERNS AND OPPORTUNITIES EXIST TO CLARIFY THE PROVISION 1 (2010) (noting that the FDIC's direct assistance to institutions that had never received such assistance before, such as "healthy" banks, bank holding companies, and other bank affiliates, raised questions as to the interpretation of the scope of the FDIC's authority).

285. *See* Walker, *supra* note 17, at 689 ("In the view of the U.S. Treasury and the Federal Reserve, the 'systemic risk exception' . . . *did* authorize these guarantee programs.").

286. *See* GEITHNER, *supra* note 236, at 230-35. The FDIC's final decision of guarantying the new unsecured debt of bank holding companies as well as their commercial bank subsidiaries, but not of their broker-dealer subsidiaries or their existing debt, was made after considering both (i) the need to keep the FDIC's authority within formal boundaries of the bank safety net, and (ii) the potential consequence that setting a dividing line between what is guaranteed and what is not may spark a run on firms that are just beyond the safety line. *Id.*

287. *See* BERNANKE, *supra* note 272, at 464-65 ("The legislation also restricted the FDIC's authority to guarantee bank debt . . . now the FDIC would need congressional approval in addition to the concurrence of the Fed and the Treasury secretary—not an easy hurdle to clear, as we saw with the TARP vote. And the FDIC no longer could invoke the systemic risk exception for specific firms that had allowed it during the crisis to help stabilize Citigroup."); Walker, *supra* note 17, at 698-99.

288. *See* 12 U.S.C. § 1823(c)(4)(G)(i) (2012).

289. *Id.* § 5612 (2012).

authority under Section 13(c)(4)(G)(i) of the FDIA.[290] In contrast with the FDIC's previous *independent* authority, the exercise of new guarantee authority requires congressional approval in addition to the concurrence of the Fed and the Treasury secretary.[291] Given the severity of the hurdle, the creation of a broad guarantee program such as the TLGP seems to be impossible in the future.[292]

3. Bear Stearns and AIG, and Curtailment of the Fed's Section 13(3) Authority

Despite the profit made from the loans to Bear Stearns and the AIG bailouts, Dodd-Frank considered such lending as evidence that Section 13(3) granted the Fed excessive authority. To disable the Fed's ability to make similar types of loan, Dodd-Frank reduced the Fed's emergency lending authority.[293] In particular, Section 1101 of Dodd-Frank removes the Fed's power of lending to any single institution and limits Fed's lending only to institutions participating in facilities with "broad-based eligibility," meaning a program or facility designed to provide liquidity to an identifiable market or a sector of the financial system.[294] The Federal Reserve Board expressly indicated that the purpose of these restrictions was to prevent the Fed from lending to a failing firm as was done in the case of Bear Stearns and AIG.[295] Dodd-Frank envisaged that the criteria

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290. *See id.* § 5613(a) ("Suspension of parallel Federal Deposit Insurance Act authority. Effective upon July 21, 2010, the Corporation may not exercise its authority under section 1823(c)(4)(G)(i) of this title to establish any widely available debt guarantee program for which section 5612 of this title would provide authority."); Walker, *supra* note 17, at 698-700.

291. *See* BERNANKE, THE COURAGE TO ACT, *supra* note 272, at 465; Walker, *supra* note 17, at 699.

292. *See* Walker, *supra* note 17, at 700.

293. *See* Walker, *supra* note 17, at 690.

294. *See* 12 U.S.C. § 343(3)(B)(i) (2012) ("Such policies and procedures shall be designed to ensure that any emergency lending program or facility is for the purpose of providing liquidity to the financial system, and not to aid a failing financial company . . . ."); Extensions of Credit by Federal Reserve Banks, 80 Fed. Reg. 78,959-01 (Dec. 18, 2015) (codified at 12 C.F.R. pt. 201) ("The Dodd-Frank Act amended section 13(3) to remove the general authority to lend to an individual, partnership, or corporation and to replace that general authority with the limited authority to extend emergency credit only to participants in a program or facility with *broad-based eligibility* designed for the purpose of providing liquidity to the financial *system*.") (emphasis added); Walker, *supra* note 17, at 690.

295. *See* Walker, *supra* note 17, at 690.

of broad-based eligibility would channel the provided liquidity to the entire financial system, rather than remaining in a particular distressed firm.[296] To buttress that purpose, Dodd-Frank also invented a new orderly liquidation authority (the "OLA").[297] The OLA allows the FDIC to put a failing firm into receivership, thereby forcing shareholders and creditors of the firm to bear the loss.[298]

Although conceived with good intentions, Dodd-Frank's preventative provisions are unwisely restrictive, reflecting a misunderstanding of Bagehot's dictum. First, during the financial crisis, the notion of "letting failing firms fail" would be a recipe for creating a systemic disaster.[299] For big financial institutions that have extensive counterparty relationships, such as AIG and Bear Stearns, the failure of one particular firm threatens the failure of a whole system.[300] Therefore, providing liquidity to those particular big firms contains profound significance in preventing the potential dysfunction of the entire financial system.[301] Meanwhile, due to the interconnection between financial institutions, providing liquidity to the largest interconnected institutions will greatly reduce counterparty risk, relieving financial stress in marketplaces that promote greater liquidity in all asset classes. In this sense, providing liquidity to large interconnected institutions equals providing liquidity to the financial system. As a result, Dodd-Frank's requirement of finding "broad-based eligibility," along with the narrow interpretation that limits provision of liquidity to a "financial market," seems to be overly restrictive and is essentially denying the interconnectedness of the financial system.

Secondly, Dodd-Frank's bias against lending to specific institutions constitutes a deviation from Bagehot's dictum.[302] Bagehot's dictum

296. *See* Extensions of Credit by Federal Reserve Banks, 80 Fed. Reg. at 78,960-62 (Dec. 18, 2015); Walker, *supra* note 17, at 690-91.

297. *See* 12 U.S.C. §§ 5381-5394; Walker, *supra* note 17, at 694-95.

298. *See* Walker, *supra* note 17, at 696.

299. *See* GEITHNER, *supra* note 236, at 518 ("Let failing firms fail. Let the creditors who financed their binges pay the price. But that is a recipe for making a systemic crisis worse."); Walker, *supra* note 17, at 714-15.

300. *See* Walker, *supra* note 17, at 718-20 n.145.

301. *See* Letter from Ben S. Bernanke, Chairman, Bd. of Governors of the Fed. Reserve Sys., to the Fin. Crisis Inquiry Comm'n 9 (Nov. 4, 2010) ("The rationale for providing credit support to particular institutions was to avert a disorderly failure of these institutions and so to limit the impact of the firms' difficulties on the functioning of financial markets and the broader economy.").

302. *See* Walker, *supra* note 17, at 718-21.

prescribes the central bank to lend to "anyone" and "all," so long as they are solvent firms, rather than limiting the lending to where "broad-based eligibility" can be established.[303] It would be a distorted reading of Bagehot's dictum to favor a central bank's lending to programs with broad-based eligibility and discriminating against individual institutions.[304] Because both Bear Stearns and AIG were illiquid but not insolvent,[305] and the loans to both firms were charged high interest rates, the lending was consistent with Bagehot's dictum.[306] In identifying the loans to Bear Stearns and AIG as the motivation for the "broad-based eligibility" restriction, Dodd-Frank has unwisely denied the well-founded legitimacy of those two programs. By making the Fed's lending to individual institutions impossible in the future, Dodd-Frank unwisely constrains the central bank's ability to lend freely in a crisis.[307]

CONCLUSION

The 2008 bailouts were an appropriate response, a good investment, and an effective solution to save the financial markets.[308] The various bailout programs provided significant liquidity to the financial markets.[309] The timely injection of liquidity enabled the continuation of lending by

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303. *See id.* at 721.

304. *See id.* at 720-21 ("[I]t would be incorrect to conclude that a 'Bagehot-type activity' involves LOLR funding only to the financial system at large and not to a single troubled, but solvent, institution.").

305. *See* WILLIAM R. CLINE & JOSEPH E. GAGNON, LEHMAN DIED, BAGEHOT LIVES: WHY DID THE FED AND TREASURY LET A MAJOR WALL STREET BANK FAIL? 5 (2013), https://www.piie.com/publications/pb/pb13-21.pdf [https://perma.cc/79WT-7Y93] ("Overall, it appears that Bear Stearns was solvent at the time of its emergency loan, but its capital had been eroded by more than 90 percent and its shareholders took a large loss."); Walker, *supra* note 17, at 718 (arguing that the Fed's Section 13(3) actions in the cases of Bear Stearns and AIG met the solvency, collateral, and penalty rate requirements set out by Bagehot); Letter from Bernanke, *supra* note 301, at 13 (arguing that AIG's problems appeared at the time to be more classical liquidity needs and could be covered with borrowings secured by valuable collateral).

306. *See* BERNANKE, *supra* note 272, at 281 ("Unlike Lehman, AIG appeared to have sufficiently valuable assets . . . to serve as collateral and to meet the legal requirement that the loan to be 'secured to the satisfaction' of the lending Reserve Bank.").

307. *See* Walker, *supra* note 17, at 738 n.155.

308. *See generally* Madigan, *supra* note 6 (arguing that the 2008 bailouts were appropriate and effective).

309. *See id*.

financial institutions, thereby sustaining normal financial activities.[310] By stabilizing the financial markets, the bailout programs effectively prevented systemic risk, therefore preserving the potential of the entire economy.[311] In creating those programs, the federal government followed Bagehot's dictum, with necessary innovations.[312] In applying Bagehot's dictum in the real world, both the presence of gray areas and the need for practical considerations rendered the strict application of such a dictum extremely challenging, if not impossible.[313] The constant development of financial markets requires a compatible regulatory system to incorporate eligible innovations into the definition of standard central bank mechanisms.[314] Given the effectiveness and legitimacy of the 2007-08 bailouts, the curtailment of bailouts by Dodd-Frank appears to be an overhasty decision. The 2007-08 bailouts evince the government's, and especially the Fed's, ability to respond to a crisis with wisdom and flexibility. The preservation of such flexibility essentially relies on preserving the Fed's independence in the exercise of its lending authorities. These reflections counsel reconsideration of Dodd-Frank's anti-bailout provisions.

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310. *See id*.

311. *See id*.

312. *See generally id*. (arguing the necessity of the creation of unconventional lending facilities, such as the PDCF and the TSLF, as the modern structure of financial industry requires rapid injection of liquidity through multiple channels, which the traditional way of lending will not be able to achieve).

313. *See id*.

314. *See id*.

APPENDIX 1: PRIMARY CREDITS WITH FED FUND RATE COMPARISON

Observing Date	Primary Credit (Millions of dollars)	Primary Rate (%)	Gain/Loss(in dollars)	Fed Fund Rate Dates	Fed Fund Rate (%)
08-15-07	11	5.75	1,732.88	08-01-07	5.02
08-22-07	1,200.00	5.75	189,041.10	08-01-07	5.02
08-29-07	1,315.00	5.75	207,157.53	08-01-07	5.02
09-05-07	1,103.00	5.75	173,760.27	09-01-07	4.94
09-12-07	2,932.00	5.75	461,890.41	09-01-07	4.94
09-19-07	2,179.00	5.25	313,417.81	09-01-07	4.94
09-26-07	88	5.25	12,657.53	09-01-07	4.94
10-03-07	27	5.25	3,883.56	10-01-07	4.76
10-10-07	113	5.25	16,253.42	10-01-07	4.76
10-17-07	126	5.25	18,123.29	10-01-07	4.76
10-24-07	142	5.25	20,424.66	10-01-07	4.76
10-31-07	190	5.25	27,328.77	10-01-07	4.76
11-07-07	191	5.00	26,164.38	11-01-07	4.49
11-14-07	523	5.00	71,643.84	11-01-07	4.49
11-21-07	434	5.00	59,452.05	11-01-07	4.49
11-28-07	7	5.00	958.9	11-01-07	4.49
12-05-07	309	5.00	42,328.77	12-01-07	4.24
12-12-07	3,009.00	5.00	412,191.78	12-01-07	4.24
12-19-07	4,586.00	4.75	596,808.22	12-01-07	4.24
12-26-07	4,802.00	4.75	624,917.81	12-01-07	4.24
01-02-08	5,770.00	4.75	750,890.41	01-01-08	3.94
01-09-08	1,512.00	4.75	196,767.12	01-01-08	3.94
01-16-08	1,230.00	4.75	160,068.49	01-01-08	3.94
01-23-08	744	4.00	81,534.25	01-01-08	3.94
01-30-08	25	3.50	2,397.26	01-01-08	3.94
02-06-08	144	3.50	13,808.22	02-01-08	2.98
02-13-08	57	3.50	5,465.75	02-01-08	2.98
02-20-08	220	3.50	21,095.89	02-01-08	2.98
02-27-08	169	3.50	16,205.48	02-01-08	2.98
03-05-08	355	3.50	34,041.10	03-01-08	2.61

03-12-08	99	3.50	9,493.15	03-01-08	2.61
03-19-08	81	3.25	7,212.33	03-01-08	2.61
03-26-08	550	2.50	37,671.23	03-01-08	2.61
04-02-08	7,013.00	2.50	480,342.47	04-01-08	2.28
04-09-08	10,182.00	2.50	697,397.26	04-01-08	2.28
04-16-08	7,841.00	2.50	537,054.79	04-01-08	2.28
04-23-08	10,731.00	2.50	735,000.00	04-01-08	2.28
04-30-08	11,588.00	2.50	793,698.63	04-01-08	2.28
05-07-08	11,655.00	2.25	718,458.90	05-01-08	1.98
05-14-08	14,416.00	2.25	888,657.53	05-01-08	1.98
05-21-08	13,536.00	2.25	834,410.96	05-01-08	1.98
05-28-08	15,950.00	2.25	983,219.18	05-01-08	1.98
06-04-08	15,921.00	2.25	981,431.51	06-01-08	2.00
06-11-08	13,148.00	2.25	810,493.15	06-01-08	2.00
06-18-08	13,371.00	2.25	824,239.73	06-01-08	2.00
06-25-08	14,702.00	2.25	906,287.67	06-01-08	2.00
07-02-08	14,861.00	2.25	916,089.04	07-01-08	2.01
07-09-08	12,856.00	2.25	792,493.15	07-01-08	2.01
07-16-08	13,916.00	2.25	857,835.62	07-01-08	2.01
07-23-08	16,381.00	2.25	1,009,787.67	07-01-08	2.01
07-30-08	17,452.00	2.25	1,075,808.22	07-01-08	2.01
08-06-08	17,370.00	2.25	1,070,753.42	08-01-08	2.00
08-13-08	17,699.00	2.25	1,091,034.25	08-01-08	2.00
08-20-08	17,513.00	2.25	1,079,568.49	08-01-08	2.00
08-27-08	18,469.00	2.25	1,138,500.00	08-01-08	2.00
09-03-08	18,976.00	2.25	1,169,753.42	09-01-08	1.81
09-10-08	19,796.00	2.25	1,220,301.37	09-01-08	1.81
09-17-08	21,598.00	2.25	1,331,383.56	09-01-08	1.81
09-24-08	39,357.00	2.25	2,426,116.44	09-01-08	1.81
10-01-08	44,463.00	2.25	2,740,869.86	10-01-08	0.97
10-08-08	75,010.00	1.75	3,596,369.86	10-01-08	0.97
10-15-08	99,659.00	1.75	4,778,171.23	10-01-08	0.97
10-22-08	105,754.00	1.75	5,070,397.26	10-01-08	0.97
10-29-08	111,946.00	1.25	3,833,767.12	10-01-08	0.97
11-05-08	109,994.00	1.25	3,766,917.81	11-01-08	0.39

11-12-08	95,380.00	1.25	3,266,438.36	11-01-08	0.39
11-19-08	91,552.00	1.25	3,135,342.47	11-01-08	0.39
11-26-08	93,628.00	1.25	3,206,438.36	11-01-08	0.39
12-03-08	90,333.00	1.25	3,093,595.89	12-01-08	0.16
12-10-08	90,161.00	1.25	3,087,705.48	12-01-08	0.16
12-17-08	88,407.00	0.50	1,211,054.79	12-01-08	0.16
12-24-08	86,260.00	0.50	1,181,643.84	12-01-08	0.16
12-31-08	86,550.00	0.50	1,185,616.44	12-01-08	0.16
01-07-09	87,935.00	0.50	1,204,589.04	01-01-09	0.15
01-14-09	69,101.00	0.50	946,589.04	01-01-09	0.15
01-21-09	61,618.00	0.50	844,082.19	01-01-09	0.15
01-28-09	64,990.00	0.50	890,273.97	01-01-09	0.15
02-04-09	67,426.00	0.50	923,643.84	02-01-09	0.22
02-11-09	64,574.00	0.50	884,575.34	02-01-09	0.22
02-18-09	65,992.00	0.50	904,000.00	02-01-09	0.22
02-25-09	64,408.00	0.50	882,301.37	02-01-09	0.22
03-04-09	65,961.00	0.50	903,575.34	03-01-09	0.18
03-11-09	63,487.00	0.50	869,684.93	03-01-09	0.18
03-18-09	65,683.00	0.50	899,767.12	03-01-09	0.18
03-25-09	62,782.00	0.50	860,027.40	03-01-09	0.18
04-01-09	59,735.00	0.50	818,287.67	04-01-09	0.15
04-08-09	49,159.00	0.50	673,410.96	04-01-09	0.15
04-15-09	48,490.00	0.50	664,246.58	04-01-09	0.15
04-22-09	43,112.00	0.50	590,575.34	04-01-09	0.15
04-29-09	44,788.00	0.50	613,534.25	04-01-09	0.15
05-06-09	40,941.00	0.50	560,835.62	05-01-09	0.18
05-13-09	39,872.00	0.50	546,191.78	05-01-09	0.18
05-20-09	38,155.00	0.50	522,671.23	05-01-09	0.18
05-27-09	38,153.00	0.50	522,643.84	05-01-09	0.18
06-03-09	41,930.00	0.50	574,383.56	06-01-09	0.21
06-10-09	36,874.00	0.50	505,123.29	06-01-09	0.21
06-17-09	36,182.00	0.50	495,643.84	06-01-09	0.21
06-24-09	39,095.00	0.50	535,547.95	06-01-09	0.21
07-01-09	35,910.00	0.50	491,917.81	07-01-09	0.16
07-08-09	34,966.00	0.50	478,986.30	07-01-09	0.16

07-15-09	34,457.00	0.50	472,013.70	07-01-09	0.16
07-22-09	33,748.00	0.50	462,301.37	07-01-09	0.16
07-29-09	33,803.00	0.50	463,054.79	07-01-09	0.16
08-05-09	35,090.00	0.50	480,684.93	08-01-09	0.16
08-12-09	33,934.00	0.50	464,849.32	08-01-09	0.16
08-19-09	30,711.00	0.50	420,698.63	08-01-09	0.16
08-26-09	29,981.00	0.50	410,698.63	08-01-09	0.16
09-02-09	32,659.00	0.50	447,383.56	09-01-09	0.15
09-09-09	30,374.00	0.50	416,082.19	09-01-09	0.15
09-16-09	28,681.00	0.50	392,890.41	09-01-09	0.15
09-23-09	28,186.00	0.50	386,109.59	09-01-09	0.15
09-30-09	27,977.00	0.50	383,246.58	09-01-09	0.15
10-07-09	27,898.00	0.50	382,164.38	10-01-09	0.12
10-14-09	27,380.00	0.50	375,068.49	10-01-09	0.12
10-21-09	23,840.00	0.50	326,575.34	10-01-09	0.12
10-28-09	22,578.00	0.50	309,287.67	10-01-09	0.12
11-04-09	22,610.00	0.50	309,726.03	11-01-09	0.12
11-11-09	20,799.00	0.50	284,917.81	11-01-09	0.12
11-18-09	19,793.00	0.50	271,136.99	11-01-09	0.12
11-25-09	19,932.00	0.50	273,041.10	11-01-09	0.12
12-02-09	19,818.00	0.50	271,479.45	12-01-09	0.12
12-09-09	19,350.00	0.50	265,068.49	12-01-09	0.12
12-16-09	19,093.00	0.50	261,547.95	12-01-09	0.12
12-23-09	18,749.00	0.50	256,835.62	12-01-09	0.12
12-30-09	18,743.00	0.50	256,753.42	12-01-09	0.12
01-06-10	19,453.00	0.50	266,479.45	01-01-10	0.11
01-13-10	17,500.00	0.50	239,726.03	01-01-10	0.11
01-20-10	15,112.00	0.50	207,013.70	01-01-10	0.11
01-27-10	14,855.00	0.50	203,493.15	01-01-10	0.11
02-03-10	14,767.00	0.50	202,287.67	02-01-10	0.13
02-10-10	14,562.00	0.50	199,479.45	02-01-10	0.13
02-17-10	14,263.00	0.50	195,383.56	02-01-10	0.13
02-24-10	13,960.00	0.75	286,849.32	02-01-10	0.13
03-03-10	13,773.00	0.75	283,006.85	03-01-10	0.16
03-10-10	13,730.00	0.75	282,123.29	03-01-10	0.16

03-17-10	11,489.00	0.75	236,075.34	03-01-10	0.16
03-24-10	10,750.00	0.75	220,890.41	03-01-10	0.16
03-31-10	7,664.00	0.75	157,479.45	03-01-10	0.16
04-07-10	7,205.00	0.75	148,047.95	04-01-10	0.20
04-14-10	6,770.00	0.75	139,109.59	04-01-10	0.20
04-21-10	6,227.00	0.75	127,952.05	04-01-10	0.20
04-28-10	5,990.00	0.75	123,082.19	04-01-10	0.20
05-05-10	5,347.00	0.75	109,869.86	05-01-10	0.20
05-12-10	5,150.00	0.75	105,821.92	05-01-10	0.20
05-19-10	5,114.00	0.75	105,082.19	05-01-10	0.20
05-26-10	4,315.00	0.75	88,664.38	05-01-10	0.20
06-02-10	678	0.75	13,931.51	06-01-10	0.18
06-09-10	105	0.75	2,157.53	06-01-10	0.18
06-16-10	104	0.75	2,136.99	06-01-10	0.18
06-23-10	151	0.75	3,102.74	06-01-10	0.18
06-30-10	162	0.75	3,328.77	06-01-10	0.18
07-07-10	41	0.75	842.47	07-01-10	0.18
07-14-10	86	0.75	1,767.12	07-01-10	0.18
07-21-10	25	0.75	513.7	07-01-10	0.18
07-28-10	11	0.75	226.03	07-01-10	0.18
08-04-10	36	0.75	739.73	08-01-10	0.19
08-11-10	14	0.75	287.67	08-01-10	0.19
08-18-10	12	0.75	246.58	08-01-10	0.19
08-25-10	28	0.75	575.34	08-01-10	0.19
09-01-10	13	0.75	267.12	09-01-10	0.19
09-08-10	29	0.75	595.89	09-01-10	0.19
09-15-10	29	0.75	595.89	09-01-10	0.19
09-22-10	20	0.75	410.96	09-01-10	0.19
09-29-10	25	0.75	513.7	09-01-10	0.19
10-06-10	89	0.75	1,828.77	10-01-10	0.19
10-13-10	15	0.75	308.22	10-01-10	0.19
10-20-10	32	0.75	657.53	10-01-10	0.19
10-27-10	24	0.75	493.15	10-01-10	0.19
11-03-10	64	0.75	1,315.07	11-01-10	0.19
11-10-10	13	0.75	267.12	11-01-10	0.19

11-17-10	25	0.75	513.7	11-01-10	0.19
11-24-10	158	0.75	3,246.58	11-01-10	0.19
12-01-10	191	0.75	3,924.66	12-01-10	0.18
12-08-10	38	0.75	780.82	12-01-10	0.18
12-15-10	22	0.75	452.05	12-01-10	0.18
12-22-10	28	0.75	575.34	12-01-10	0.18
12-29-10	52	0.75	1,068.49	12-01-10	0.18
Sum			105,767,547.95		

APPENDIX 2: MBS FED DATA

First Settle Date	Purchase Price	Interest (%)	Number of Days	Last Price	Interest Amount	Mark to Market PNL
08-13-09	101.17	5.00	2643.00	110.2031	90.5137	22.32165
07-16-09	97.17	3.50	2671.00	105.83	38.41849	13.36543
05-12-09	97.82	3.50	2736.00	105.08	91.82466	25.96957
06-11-09	97.56	3.50	2706.00	105.23	-90.8178	-27.5321
07-13-09	96.81	3.50	2674.00	105.52	10.76926	3.776844
08-13-09	91.50	3.50	2643.00	105.48	50.68767	30.56694
01-19-10	102.36	4.00	2484.00	103.44	394.7178	15.30892
02-18-09	102.26	4.00	2819.00	103.41	393.8877	14.35353
03-17-09	101.61	4.00	2792.00	104.02	757.2822	58.59583
04-16-09	100.77	4.00	2762.00	104.11	544.8329	59.64945
05-18-09	101.26	4.00	2730.00	103.86	747.9452	64.17576
06-16-09	101.08	4.00	2701.00	103.83	355.2	32.62515
07-16-09	100.96	4.00	2671.00	103.42	819.5945	68.27704
08-18-09	100.63	4.00	2638.00	103.14	650.4658	56.13541
10-19-09	101.09	4.00	2576.00	103.61	614.0055	54.17077
11-17-09	101.78	4.00	2547.00	103.50	495.4438	29.93247
12-17-09	101.09	4.00	2517.00	103.46	413.7534	35.19203
02-12-09	100.91	4.00	2825.00	108.15	62.97041	14.589
03-12-09	99.20	4.00	2797.00	100.00	91.95616	2.419355
04-13-09	99.92	4.00	2765.00	100.00	60.60274	0.160128
07-13-09	99.01	4.00	2674.00	100.00	58.60822	1.999798
08-18-09	98.34	4.00	2638.00	100.00	43.36438	2.532032
01-13-09	101.28	4.00	2855.00	106.92	735.2603	130.867
02-12-09	100.64	4.00	2825.00	106.85	866.8493	172.9067
03-12-09	100.34	4.00	2797.00	106.52	4061.397	815.4976
04-13-09	100.12	4.00	2765.00	106.86	6615.94	1469.698
05-12-09	98.77	4.00	2736.00	107.05	3071.216	858.3581
06-11-09	99.91	4.00	2706.00	107.27	6605.605	1639.941
07-13-09	99.32	4.00	2674.00	107.11	6036.647	1615.597
08-13-09	99.37	4.00	2643.00	107.17	1144.093	310.1279
10-14-09	99.75	4.00	2581.00	107.13	84.85479	22.18655
11-12-09	98.49	4.00	2552.00	107.15	559.3425	175.8046
12-14-09	98.03	4.00	2520.00	107.05	338.3014	112.7565

01-19-10	103.91	4.50	2484.00	103.64	459.3699	-3.88858
02-18-09	102.55	4.50	2819.00	103.14	512.6332	8.495094
03-17-09	101.76	4.50	2792.00	102.77	903.5753	25.94109
04-16-09	101.61	4.50	2762.00	103.08	22.13384	0.939161
05-18-09	102.58	4.50	2730.00	102.86	-50.4863	-0.40852
06-16-09	100.66	4.50	2701.00	102.67	249.75	14.99013
07-16-09	100.33	4.50	2671.00	102.67	-62.5673	-4.43493
08-18-09	100.56	4.50	2638.00	102.67	292.7096	18.90103
09-17-09	101.61	4.50	2608.00	102.67	366.549	11.91357
10-19-09	102.80	4.50	2576.00	102.67	508.1425	-1.99416
11-17-09	103.66	4.50	2547.00	102.67	368.9661	-11.2005
12-17-09	103.47	4.50	2517.00	102.67	736.9983	-18.3198
07-13-09	100.52	4.50	2674.00	100.00	115.3849	-1.81058
08-13-09	101.14	4.50	2643.00	100.00	32.58493	-1.12715
09-14-09	100.63	4.50	2611.00	100.00	32.19041	-0.62606
01-13-09	102.63	4.50	2855.00	109.19	3687.057	669.0613
02-12-09	101.14	4.50	2825.00	109.17	4466.789	1018.697
03-12-09	101.70	4.50	2797.00	108.58	15802.09	3099.214
04-13-09	100.76	4.50	2765.00	108.58	11223.82	2554.702
05-12-09	100.37	4.50	2736.00	108.58	8829.222	2140.557
06-11-09	101.48	4.50	2706.00	109.27	19249.67	4426.789
07-13-09	101.15	4.50	2674.00	109.27	10994.54	2675.789
08-13-09	100.72	4.50	2643.00	109.27	7062.784	1839.023
09-14-09	99.73	4.50	2611.00	109.27	2655.709	788.8189
10-14-09	98.46	4.50	2581.00	109.33	5162.884	1791.16
11-12-09	100.25	4.50	2552.00	109.36	3036.181	876.4902
12-14-09	100.04	4.50	2520.00	109.28	2252.466	669.9174
03-17-09	102.33	5.00	2792.00	102.36	66.93151	0.050236
04-16-09	103.08	5.00	2762.00	102.11	-52.9699	1.318272
06-16-09	102.24	5.00	2701.00	102.64	37	0.391848
07-16-09	101.94	5.00	2671.00	102.33	-31.1007	-0.32363
01-13-09	103.05	5.00	2855.00	110.51	5684.97	1052.989
02-12-09	102.92	5.00	2825.00	110.45	3294.801	623.0366
03-12-09	101.98	5.00	2797.00	110.67	4038.293	898.311
04-13-09	101.41	5.00	2765.00	110.67	5044.042	1216.255
05-12-09	102.72	5.00	2736.00	110.67	8904.743	1839.258
06-11-09	103.08	5.00	2706.00	110.67	-7263.57	-1443.18

07-13-09	102.09	5.00	2674.00	110.67	659.3425	151.3113
08-13-09	102.04	5.00	2643.00	110.67	5286	1235.059
09-14-09	100.34	5.00	2611.00	110.67	6346.518	1827.076
10-14-09	100.92	5.00	2581.00	110.78	6901.17	1906.744
11-12-09	102.10	5.00	2552.00	110.71	4791.467	1156.031
12-14-09	102.81	5.00	2520.00	110.64	2804.795	618.8812
01-27-09	103.63	5.50	2841.00	112.49	5450.132	1088.546
02-12-09	103.27	5.50	2825.00	112.54	7908.375	1667.329
03-12-09	102.52	5.50	2797.00	112.54	12876.62	2985.532
04-13-09	102.29	5.50	2765.00	112.54	12571.56	3023.01
05-12-09	102.70	5.50	2736.00	112.36	2892.102	659.7908
06-11-09	103.83	5.50	2706.00	112.36	-10293.7	-2073.81
07-13-09	103.35	5.50	2674.00	112.36	-2367.22	-512.144
08-13-09	102.96	5.50	2643.00	112.36	-3345.39	-766.849
09-14-09	102.84	5.50	2611.00	112.36	6560.585	1543.52
10-14-09	102.69	5.50	2581.00	112.81	6154.624	1559.538
11-12-09	103.90	5.50	2552.00	112.68	10223.21	2247.213
12-14-09	103.89	5.50	2520.00	112.58	2293.545	505.5059
01-13-09	103.80	6.00	2855.00	114.51	1935.925	425.5572
02-12-09	102.90	6.00	2825.00	114.57	3109.141	759.3639
03-12-09	103.27	6.00	2797.00	114.57	8748.342	2082.146
04-13-09	103.19	6.00	2765.00	114.57	2318.055	562.4793
05-12-09	103.22	6.00	2736.00	114.57	-6127.89	-1498.31
06-11-09	104.63	6.00	2706.00	114.57	-2586.64	-552.48
07-13-09	104.08	6.00	2674.00	114.57	-17.5825	-4.03183
08-13-09	104.77	6.00	2643.00	114.57	-82.5485	-17.7738
09-14-09	105.58	6.00	2611.00	114.57	-42.9205	-8.51566
10-14-09	105.19	6.00	2581.00	114.68	0	0
11-12-09	105.41	6.00	2552.00	114.68	41.95068	8.790954
12-14-09	105.53	6.00	2520.00	114.62	2381.918	495.0522
02-12-09	103.78	6.50	2825.00	114.62	580.1041	120.3957
04-13-09	103.59	6.50	2765.00	114.62	46.77774	10.11143
05-12-09	105.38	6.50	2736.00	114.62	-24.3616	-4.3821
06-11-09	105.63	6.50	2706.00	114.62	0	0
07-13-09	106.44	6.50	2674.00	114.62	216.6673	34.9488
08-13-09	106.88	6.50	2643.00	114.62	-94.1342	-14.4755
09-14-09	106.41	6.50	2611.00	114.62	0	0

10-14-09	106.67	6.50	2581.00	114.62	0	0
11-12-09	106.58	6.50	2552.00	114.62	0	0
12-14-09	106.92	6.50	2520.00	114.62	89.75342	14.39528
02-18-10	96.94	4.00	2454.00	107.00	53.7863	20.74566
03-18-09	100.67	4.00	2791.00	107.00	30.5863	6.283324
04-20-09	99.38	4.00	2758.00	107.00	60.44932	15.32587
05-19-09	99.96	4.00	2729.00	107.00	134.5808	31.67207
06-18-09	99.80	4.00	2699.00	107.00	133.1014	32.44429
07-20-09	99.03	4.00	2667.00	107.36	657.6164	189.2466
08-20-09	99.16	4.00	2636.00	107.36	346.6521	99.226
09-21-09	97.41	4.00	2604.00	107.36	57.07397	20.42783
01-21-10	101.59	4.50	2482.00	109.84	1294.38	343.4428
03-18-09	100.63	4.50	2791.00	108.48	1049.492	238.0587
04-20-09	100.64	4.50	2758.00	108.48	2091.168	479.3612
05-19-09	100.12	4.50	2729.00	108.48	1177.582	292.4022
06-18-09	101.56	4.50	2699.00	108.48	1331.014	272.7206
07-20-09	101.18	4.50	2667.00	108.48	1537.178	337.4971
08-20-09	101.11	4.50	2636.00	110.33	2112.411	592.6145
09-21-09	100.34	4.50	2604.00	110.33	898.9151	278.726
10-21-09	101.02	4.50	2574.00	110.33	1039.297	301.7703
11-19-09	100.70	4.50	2545.00	110.15	376.5205	112.6006
12-21-09	100.54	4.50	2513.00	110.00	1679.235	509.7642
01-21-10	104.11	5.00	2482.00	110.56	629	114.5781
02-19-09	102.45	5.00	2818.00	110.53	1910.836	390.2946
03-18-09	102.13	5.00	2791.00	110.53	951.9986	204.747
04-20-09	101.48	5.00	2758.00	110.53	324.9151	76.67725
05-19-09	101.42	5.00	2729.00	110.53	93.4589	22.45099
06-18-09	103.66	5.00	2699.00	110.53	92.43151	16.56356
08-20-09	101.52	5.00	2636.00	110.53	324.9863	79.85741
09-21-09	102.06	5.00	2604.00	110.53	267.5342	62.22748
10-21-09	102.61	5.00	2574.00	111.05	1621.973	378.3378
11-19-09	103.19	5.00	2545.00	110.80	2422.979	512.8307
12-21-09	103.98	5.00	2513.00	110.67	1204.863	225.2047
01-21-10	105.56	5.50	2482.00	112.62	46.75	8.359446
02-19-09	102.77	5.50	2818.00	112.61	658.1767	148.3474
03-18-09	102.56	5.50	2791.00	112.61	399.5336	93.05398
04-20-09	102.80	5.50	2758.00	112.61	-166.236	-38.1553

05-19-09	104.38	5.50	2729.00	111.77	-92.5243	-15.9203
06-18-09	103.94	5.50	2699.00	111.77	538.8757	99.75903
07-20-09	103.69	5.50	2667.00	112.83	-481.649	-105.661
09-21-09	104.77	5.50	2604.00	112.83	-137.334	-26.9304
10-21-09	104.38	5.50	2574.00	112.83	135.7521	28.33874
11-19-09	106.34	5.50	2545.00	112.87	-162.985	-26.0878
12-21-09	105.95	5.50	2513.00	112.79	113.6014	19.35361
01-21-09	103.94	6.00	2847.00	112.79	93.6	17.01953
02-19-09	102.98	6.00	2818.00	112.79	185.2932	38.08526
03-18-09	103.73	6.00	2791.00	112.79	1307.564	248.7891
04-20-09	103.47	6.00	2758.00	112.79	249.3534	49.51461
05-19-09	104.73	6.00	2729.00	112.79	-1312.16	-224.969
06-18-09	104.61	6.00	2699.00	112.79	303.9148	53.5313
07-20-09	103.19	6.00	2667.00	114.98	-298.119	-77.7224
08-20-09	104.52	6.00	2636.00	114.98	-51.9978	-12.0142
02-18-09	101.36	4.00	2819.00	102.82	188.4482	8.802113
03-17-09	100.46	4.00	2792.00	103.33	667.0203	62.18072
04-16-09	99.81	4.00	2762.00	103.33	270.903	31.52315
05-18-09	100.55	4.00	2730.00	103.33	-254.301	-23.4623
06-16-09	101.02	4.00	2701.00	103.33	14.8	1.141084
07-16-09	98.52	4.00	2671.00	103.33	321.9836	53.654
09-17-09	100.13	4.00	2608.00	103.33	42.87123	4.786948
10-19-09	100.92	4.00	2576.00	103.33	21.1726	1.787639
11-17-09	101.23	4.00	2547.00	103.28	83.73699	6.07726
01-13-10	98.83	4.00	2490.00	106.80	136.4384	40.33938
02-12-09	100.73	4.00	2825.00	106.74	1145.479	220.6684
03-12-09	99.03	4.00	2797.00	106.74	2774.317	704.4433
04-13-09	98.52	4.00	2765.00	106.74	4224.314	1162.818
05-12-09	98.76	4.00	2736.00	106.74	2543.506	685.2323
06-11-09	98.44	4.00	2706.00	106.74	2639.277	750.1847
07-13-09	99.30	4.00	2674.00	106.74	1201.468	307.0891
08-13-09	99.09	4.00	2643.00	106.74	1795.792	478.5024
12-14-09	99.22	4.00	2520.00	106.93	158.7945	44.66346
02-18-09	102.92	4.50	2819.00	102.82	286.7271	-0.7808
03-16-10	103.81	4.50	2428.00	102.82	127.2205	-4.04246
04-16-09	101.88	4.50	2762.00	102.82	102.1562	2.7756
05-18-09	103.00	4.50	2730.00	102.82	-33.6575	0.172239

06-16-09	102.66	4.50	2701.00	102.82	33.3	0.158381
10-19-09	102.76	4.50	2576.00	102.48	381.1068	-3.21866
11-17-09	103.77	4.50	2547.00	102.48	78.50342	-3.09729
02-12-09	100.67	4.50	2825.00	109.63	34.82877	8.90135
01-13-09	102.42	4.50	2855.00	109.16	3775.053	705.3084
02-12-09	102.22	4.50	2825.00	109.14	7131.19	1386.856
03-12-09	100.56	4.50	2797.00	109.14	14138.26	3499.753
04-13-09	100.72	4.50	2765.00	109.14	13253.14	3251.587
05-12-09	100.65	4.50	2736.00	109.11	7072.485	1762.223
06-11-09	100.37	4.50	2706.00	109.11	6478.398	1690.817
07-13-09	101.02	4.50	2674.00	109.11	8456.067	2053.974
08-13-09	100.75	4.50	2643.00	109.11	7844.822	1997.538
09-14-09	99.04	4.50	2611.00	109.11	2229.186	704.0632
10-14-09	98.64	4.50	2581.00	109.30	461.3979	156.6933
11-12-09	100.42	4.50	2552.00	109.34	464.0795	130.9743
12-14-09	100.32	4.50	2520.00	109.26	1972.849	565.7755
02-18-09	103.32	5.00	2819.00	102.80	77.23288	-1.01263
09-17-09	104.72	5.00	2608.00	102.80	-25.0082	1.285511
10-19-09	104.27	5.00	2576.00	102.80	0	0
11-17-09	105.09	5.00	2547.00	102.80	0	0
12-17-09	105.48	5.00	2517.00	102.80	24.13562	-1.78061
01-13-09	103.44	5.00	2855.00	102.80	97.65664	-1.55248
01-13-09	102.63	5.00	2855.00	110.45	5954.435	1159.505
02-12-09	101.59	5.00	2825.00	110.45	6685.188	1507.237
03-12-09	101.61	5.00	2797.00	110.45	9205.195	2091.031
04-13-09	101.27	5.00	2765.00	109.83	1306.747	291.5526
05-12-09	102.58	5.00	2736.00	109.83	-1611.62	-303.831
06-17-09	101.63	5.00	2700.00	109.83	702.7397	153.2661
07-13-09	101.25	5.00	2674.00	109.83	1172.164	271.1111
08-13-09	100.86	5.00	2643.00	110.20	2208.534	565.071
09-14-09	100.99	5.00	2611.00	109.83	4667.61	1142.069
10-14-09	101.50	5.00	2581.00	110.70	6523.212	1673.071
11-12-09	102.07	5.00	2552.00	110.60	7524.904	1798.362
12-14-09	102.50	5.00	2520.00	110.50	3469.315	784.4434
02-18-09	103.27	5.50	2819.00	103.83	42.47808	0.540452
01-13-09	103.41	5.50	2855.00	112.26	1462.699	291.0021
02-12-09	103.34	5.50	2825.00	112.30	2511.541	511.6157

03-12-09	102.11	5.50	2797.00	112.30	1124.766	266.3493
04-13-09	102.35	5.50	2765.00	112.30	1874.897	437.5169
05-12-09	103.33	5.50	2736.00	112.30	3906.296	822.6166
06-11-09	103.34	5.50	2706.00	112.30	-3435.32	-730.57
07-13-09	102.19	5.50	2674.00	112.30	-1988.47	-488.288
08-13-09	103.29	5.50	2643.00	112.30	-159.304	-34.8962
09-14-09	102.88	5.50	2611.00	112.30	236.063	54.94408
11-12-09	104.38	5.50	2552.00	112.40	918.3005	183.4524
12-14-09	104.24	5.50	2520.00	112.31	1466.502	298.9439
01-13-09	103.86	6.00	2855.00	114.26	23.46575	5.00821
02-12-09	104.05	6.00	2825.00	114.30	257.0363	54.50418
03-12-09	103.60	6.00	2797.00	114.30	459.7808	103.2432
04-13-09	103.34	6.00	2765.00	114.30	-193.171	-45.0581
05-12-09	104.50	6.00	2736.00	114.30	1034.433	215.6057
06-11-09	104.42	6.00	2706.00	114.30	-1223.26	-260.094
09-14-09	105.76	6.00	2611.00	114.30	-72.9649	-13.7209
10-14-09	105.38	6.00	2581.00	114.41	0	0
11-12-09	105.52	6.00	2552.00	114.45	0	0
12-14-09	105.97	6.00	2520.00	114.38	70.42192	13.48603
03-12-09	104.09	6.50	2797.00	114.38	74.71438	14.82355
04-13-09	104.11	6.50	2765.00	114.38	356.988	71.49413
09-14-09	106.79	6.50	2611.00	114.38	-79.0453	-12.0771
10-14-09	106.38	6.50	2581.00	115.14	0	0
11-12-09	106.44	6.50	2552.00	115.14	0	0
12-14-09	106.94	6.50	2520.00	115.14	76.29041	13.03634
07-20-09	96.84	4.00	2667.00	106.89	58.45479	20.75718
08-20-09	96.08	4.00	2636.00	106.89	166.1041	64.69722
02-19-09	102.22	4.50	2818.00	107.94	17.37123	2.796746
03-18-09	100.34	4.50	2791.00	107.33	447.3247	90.5378
04-20-09	99.84	4.50	2758.00	107.36	136.011	30.1257
05-19-09	99.98	4.50	2729.00	107.36	168.226	36.90426
06-18-09	101.54	4.50	2699.00	107.08	615.5938	100.9014
07-20-09	101.09	4.50	2667.00	106.80	2912.254	500.0078
08-20-09	98.46	4.50	2636.00	107.45	1695.779	476.6009
09-21-09	99.09	4.50	2604.00	107.61	842.7329	225.6873
10-21-09	101.61	4.50	2574.00	107.89	238.0068	46.36479
12-21-09	101.80	4.50	2513.00	107.95	557.6795	108.7126

02-18-10	103.95	5.00	2454.00	108.92	495.8425	70.54849
03-18-10	103.53	5.00	2426.00	108.27	1329.315	182.9663
04-20-09	101.28	5.00	2758.00	108.17	736.726	132.6931
05-20-10	103.56	5.00	2363.00	107.95	64.73973	8.484212
07-20-09	102.36	5.00	2667.00	108.64	-142.484	-23.9297
08-20-09	100.68	5.00	2636.00	108.36	411.6493	86.95359
09-21-09	101.30	5.00	2604.00	108.61	356.7123	72.15573
02-12-09	102.77	5.50	2825.00	113.57	0.340548	0.084102
02-12-09	102.23	5.00	2825.00	111.53	38.93082	9.149028
02-12-09	102.95	5.00	2825.00	111.53	38.77603	8.348152
03-12-09	101.79	5.00	2797.00	111.46	9.578767	2.373828
03-12-09	102.20	5.00	2797.00	111.46	191.7286	45.31644
03-12-09	102.06	5.00	2797.00	111.53	190.809	46.19537
02-12-09	102.77	5.50	2825.00	113.37	2.937226	0.712014
02-12-09	102.77	5.50	2825.00	113.37	0.212842	0.051595
02-12-09	102.77	5.50	2825.00	113.37	0.468253	0.113509
02-12-09	102.77	5.50	2825.00	113.37	18.81527	4.561016
03-12-09	103.72	6.00	2797.00	114.98	101.5196	23.98002
03-12-09	102.94	5.50	2797.00	113.01	42.14658	9.778449
03-12-09	101.69	5.00	2797.00	111.46	38.31507	9.602986
03-12-09	104.17	6.50	2797.00	116.41	133.9878	31.60822
02-12-09	102.05	5.00	2825.00	111.44	442.1318	105.1735
02-12-09	102.52	5.50	2825.00	113.37	33.58654	8.353978
03-12-09	103.56	6.00	2797.00	115.47	133.5204	33.40999
01-20-09	103.33	4.50	2848.00	106.21	9.023868	0.716944
01-20-09	103.33	4.50	2848.00	106.15	10.8146	0.841218
02-12-09	102.77	5.50	2825.00	113.37	0.085137	0.020638
02-12-09	102.77	5.50	2825.00	113.37	0	0
02-12-09	102.77	5.50	2825.00	113.37	0.042568	0.010319
02-12-09	102.77	5.50	2825.00	113.14	2.55411	0.605315
01-13-09	103.98	6.00	2855.00	114.99	18.20942	4.108753
01-13-09	104.52	6.50	2855.00	110.88	7.21963	0.864205
01-13-09	104.52	6.50	2855.00	100.00	4.880877	-0.41515
01-13-09	103.98	6.00	2855.00	116.28	2.346575	0.591231
04-30-09	101.69	4.50	2748.00	109.85	-81.3107	-19.2482
02-12-09	102.77	5.50	2825.00	113.37	1.532466	0.371485
02-12-09	102.77	5.50	2825.00	113.37	0.808801	0.196062

02-12-09	102.77	5.50	2825.00	113.37	3.746027	0.908076
02-12-09	102.77	5.50	2825.00	113.37	1.70274	0.412762
02-12-09	102.77	5.50	2825.00	113.37	0.638527	0.154786
02-12-09	102.77	5.50	2825.00	113.37	0.255411	0.061914
02-12-09	102.77	5.50	2825.00	113.37	2.25613	0.546909
02-12-09	102.77	5.50	2825.00	113.37	0.979075	0.237338
02-12-09	102.77	5.50	2825.00	113.37	1.575034	0.381804
02-12-09	102.77	5.50	2825.00	113.37	0.383116	0.092871
02-12-09	102.77	5.50	2825.00	113.37	3.320342	0.804885
02-12-09	101.59	5.00	2825.00	111.46	14.58938	3.660999
02-12-09	101.59	5.00	2825.00	111.46	26.43116	6.632527
02-12-09	102.77	5.50	2825.00	113.37	0.085137	0.020638
03-12-09	101.98	5.00	2797.00	111.42	0.15326	0.037028
02-12-09	102.86	5.50	2825.00	113.34	0.042568	0.010186
01-27-09	103.22	5.50	2841.00	113.59	1.798003	0.421825
01-27-09	103.22	5.50	2841.00	113.57	1.241478	0.290895
02-12-09	102.83	5.50	2825.00	113.57	1.915582	0.470168
02-12-09	102.83	5.50	2825.00	113.57	0.297979	0.073137
02-12-09	103.04	5.50	2825.00	113.88	5.193356	1.283943
01-27-09	103.22	5.50	2841.00	113.05	0	0
02-12-09	102.86	5.50	2825.00	113.05	0.638527	0.148616
03-12-09	101.98	5.00	2797.00	111.10	0.07663	0.017885
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	14.44478	3.489886
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-11-10	98.25	4.00	2433.00	107.85	-0.47993	-0.17581
02-12-09	102.83	5.50	2825.00	113.57	1.745308	0.428375
03-12-09	101.98	5.00	2797.00	111.41	5.36411	1.294469
03-12-09	101.98	5.00	2797.00	111.41	0	0
02-12-09	104.24	6.50	2825.00	116.80	120.8403	28.93418
08-13-09	101.90	5.00	2643.00	111.10	-0.36205	-0.09028
06-22-09	100.84	5.00	2695.00	111.22	-1.18137	-0.32924
02-12-09	103.04	5.50	2825.00	113.88	1.447329	0.35782
02-12-09	103.04	5.50	2825.00	113.05	0.297979	0.06801
02-12-09	102.83	5.50	2825.00	113.57	3.320342	0.814957

02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
02-12-09	102.86	5.50	2825.00	100.00	0.085137	-0.00556
02-12-09	102.86	5.50	2825.00	100.00	0.042568	-0.00278
02-12-09	103.04	5.50	2825.00	113.88	4.299418	1.062936
02-12-09	103.04	5.50	2825.00	113.88	3.746027	0.926123
02-12-09	102.86	5.50	2825.00	113.88	0.297979	0.075023
02-12-09	102.86	5.50	2825.00	113.47	1.234486	0.299215
02-12-09	103.04	5.50	2825.00	113.88	2.000719	0.494634
02-12-09	103.04	5.50	2825.00	113.88	0.808801	0.199958
02-12-09	102.86	5.50	2825.00	113.59	2.979795	0.730001
02-12-09	102.86	5.50	2825.00	113.36	0	0
01-27-09	103.22	5.50	2841.00	100.00	0	0
02-12-09	102.86	5.50	2825.00	113.59	0.085137	0.020857
02-12-09	102.86	5.50	2825.00	113.59	0.170274	0.041714
02-12-09	102.86	5.50	2825.00	113.59	2.639247	0.646572
02-12-09	102.86	5.50	2825.00	113.59	0.042568	0.010429
01-27-09	103.22	5.50	2841.00	113.88	0.256858	0.061988
02-12-09	102.86	5.50	2825.00	113.88	0.212842	0.053588
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	1.106781	0.273627
02-12-09	103.04	5.50	2825.00	113.88	0.212842	0.052621
02-12-09	103.04	5.50	2825.00	113.88	0.255411	0.063145
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	1.532466	0.378868
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	100.00	0.042568	-0.00295
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	0.638527	0.157862
02-12-09	103.04	5.50	2825.00	113.88	0.212842	0.052621
02-12-09	103.04	5.50	2825.00	113.88	0.595959	0.147338
02-12-09	103.04	5.50	2825.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	0.212842	0.052621

02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	0.936507	0.231531
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	113.88	0.425685	0.105241
02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	0.468253	0.115765
02-12-09	103.04	5.50	2825.00	113.88	0.681096	0.168386
02-12-09	103.04	5.50	2825.00	113.88	0.85137	0.210482
02-12-09	103.04	5.50	2825.00	113.88	0.340548	0.084193
02-12-09	103.04	5.50	2825.00	113.88	0.383116	0.094717
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	0.85137	0.210482
02-12-09	103.04	5.50	2825.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	0.55339	0.136814
02-12-09	103.04	5.50	2825.00	113.88	0.510822	0.126289
02-12-09	103.04	5.50	2825.00	113.88	1.106781	0.273627
02-12-09	103.04	5.50	2825.00	113.88	1.660171	0.410441
02-12-09	103.04	5.50	2825.00	113.88	1.362192	0.336772
02-12-09	103.04	5.50	2825.00	113.88	4.001438	0.989268
02-12-09	103.04	5.50	2825.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	1.489897	0.368344
02-12-09	103.04	5.50	2825.00	113.88	0.212842	0.052621
02-12-09	103.04	5.50	2825.00	113.88	0.468253	0.115765
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	0.170274	0.042096
02-12-09	103.04	5.50	2825.00	113.88	3.490616	0.862978
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	4.639966	1.147129
02-12-09	103.04	5.50	2825.00	113.88	5.704178	1.410232
02-12-09	103.04	5.50	2825.00	113.88	2.213562	0.547254
02-12-09	103.04	5.50	2825.00	113.88	4.044007	0.999792

02-12-09	103.04	5.50	2825.00	113.88	0.255411	0.063145
02-12-09	103.04	5.50	2825.00	113.88	3.150068	0.778785
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	3.95887	0.978743
02-12-09	103.04	5.50	2825.00	113.88	2.213562	0.547254
02-12-09	103.04	5.50	2825.00	113.88	0.723664	0.17891
02-12-09	103.04	5.50	2825.00	113.88	1.40476	0.347296
02-12-09	103.04	5.50	2825.00	113.88	1.362192	0.336772
02-12-09	103.04	5.50	2825.00	113.88	1.021644	0.252579
02-12-09	103.50	5.50	2825.00	113.88	203.222	47.89709
01-27-09	103.22	5.50	2841.00	113.88	6.378629	1.539376
02-12-09	103.04	5.50	2825.00	113.88	0.936507	0.231531
02-12-09	103.04	5.50	2825.00	113.88	2.043288	0.505158
01-27-09	103.22	5.50	2841.00	113.88	1.669574	0.402924
01-27-09	103.22	5.50	2841.00	113.88	0	0
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
01-27-09	103.22	5.50	2841.00	113.88	0.171238	0.041326
02-12-09	102.86	5.50	2825.00	113.05	1.873014	0.43594
01-13-09	103.73	5.50	2855.00	113.05	25.38212	5.301684
02-12-09	103.04	5.50	2825.00	113.88	0.127705	0.031572
02-12-09	103.04	5.50	2825.00	113.88	1.660171	0.410441
02-12-09	103.04	5.50	2825.00	113.88	5.959589	1.473377
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	113.88	0.042568	0.010524
02-12-09	103.04	5.50	2825.00	113.88	1.830445	0.452537
03-12-09	102.48	5.00	2797.00	111.49	64.17774	14.73024
02-12-09	102.86	5.50	2825.00	113.05	3.1075	0.723263
03-12-09	102.48	5.00	2797.00	111.49	42.83625	9.831889
02-12-09	102.86	5.50	2825.00	113.05	2.25613	0.525109
01-27-09	103.22	5.50	2841.00	113.05	4.880293	1.085781
02-12-09	103.04	5.50	2825.00	100.00	0.085137	-0.0059
02-12-09	101.87	5.00	2825.00	111.49	50.61781	12.35489
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
01-27-09	103.22	5.50	2841.00	113.88	0.599334	0.144639
01-13-09	103.69	5.50	2855.00	113.57	15.4874	3.431562
03-12-09	102.48	5.00	2797.00	111.42	93.37382	21.26021
03-12-09	101.97	5.00	2797.00	111.49	23.71703	5.780412

02-12-09	102.27	5.00	2825.00	111.42	32.54555	7.524578
03-12-09	102.27	5.00	2797.00	111.49	189.6213	44.62797
01-13-09	103.35	5.00	2855.00	111.49	195.6653	39.41537
02-12-09	102.83	5.50	2825.00	113.57	0.936507	0.22986
03-12-09	101.98	5.00	2797.00	111.42	9.042356	2.18465
01-27-09	103.22	5.50	2841.00	113.57	5.394008	1.263888
03-12-09	101.98	5.00	2797.00	111.42	1.532603	0.37028
02-12-09	103.04	5.50	2825.00	113.88	1.830445	0.452537
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	113.88	6.470411	1.599667
03-12-09	102.15	5.00	2797.00	111.42	40.61397	9.619674
02-12-09	102.83	5.50	2825.00	113.57	1.234486	0.302997
02-12-09	102.83	5.50	2825.00	113.57	0.297979	0.073137
03-12-09	101.98	5.00	2797.00	111.42	1.762493	0.425822
03-12-09	101.98	5.00	2797.00	111.42	0.114945	0.027771
02-12-09	101.92	5.00	2825.00	111.42	29.41096	7.084197
01-27-09	103.22	5.50	2841.00	113.57	1.198668	0.280864
02-12-09	102.86	5.50	2825.00	113.05	1.319623	0.307139
02-12-09	102.83	5.50	2825.00	113.57	82.07205	20.14407
03-12-09	101.98	5.00	2797.00	111.41	3.295096	0.795174
03-12-09	102.48	5.00	2797.00	111.42	41.11207	9.360774
03-12-09	101.98	5.00	2797.00	111.42	5.67063	1.370035
03-12-09	101.98	5.00	2797.00	111.41	0.114945	0.027739
03-12-09	101.98	5.00	2797.00	111.41	0	0
03-12-09	101.98	5.00	2797.00	111.42	0.536411	0.129598
02-12-09	102.73	5.50	2825.00	113.20	62.57568	14.98891
01-27-09	103.22	5.50	2841.00	113.57	0.899001	0.210648
01-27-09	103.22	5.50	2841.00	113.88	0.256858	0.061988
02-12-09	103.04	5.50	2825.00	113.88	0.085137	0.021048
02-12-09	103.04	5.50	2825.00	114.23	0.808801	0.206374
02-12-09	102.86	5.50	2825.00	113.05	1.362192	0.317047
02-12-09	103.04	5.50	2825.00	114.23	0.042568	0.010862
02-12-09	102.86	5.50	2825.00	113.05	0	0
02-12-09	102.86	5.50	2825.00	113.36	0.212842	0.051051
02-12-09	103.04	5.50	2825.00	113.05	0.042568	0.009716
02-12-09	102.86	5.50	2825.00	113.05	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448

02-12-09	103.04	5.50	2825.00	113.36	0.85137	0.200355
02-12-09	102.86	5.50	2825.00	113.05	0.127705	0.029723
02-12-09	102.86	5.50	2825.00	113.05	0	0
02-12-09	102.86	5.50	2825.00	113.05	0.085137	0.019815
01-27-09	103.22	5.50	2841.00	113.57	0.470905	0.110339
02-12-09	102.86	5.50	2825.00	113.36	0.255411	0.061262
02-12-09	102.86	5.50	2825.00	113.36	0.170274	0.040841
02-12-09	102.86	5.50	2825.00	113.05	0.297979	0.069354
02-12-09	102.86	5.50	2825.00	100.00	0.212842	-0.0139
02-12-09	102.86	5.50	2825.00	113.35	0.042568	0.010197
02-12-09	102.86	5.50	2825.00	113.05	0.127705	0.029723
02-12-09	102.86	5.50	2825.00	113.36	0.383116	0.091893
02-12-09	102.86	5.50	2825.00	113.35	0.085137	0.020394
02-12-09	102.86	5.50	2825.00	113.05	0.042568	0.009908
02-12-09	102.86	5.50	2825.00	113.05	0	0
02-12-09	103.04	5.50	2825.00	113.05	0.042568	0.009716
01-27-09	103.22	5.50	2841.00	100.00	0.556525	-0.04055
01-27-09	103.22	5.50	2841.00	113.57	12.37197	2.898918
03-12-09	101.98	5.00	2797.00	111.42	0.191575	0.046285
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
03-12-09	101.98	5.00	2797.00	111.42	0	0
02-12-09	102.86	5.50	2825.00	113.36	0.042568	0.01021
02-12-09	103.04	5.50	2825.00	113.36	0.425685	0.100178
01-27-09	103.22	5.50	2841.00	113.57	0	0
02-12-09	103.04	5.50	2825.00	113.57	0	0
02-12-09	103.04	5.50	2825.00	113.05	0.042568	0.009716
01-27-09	103.22	5.50	2841.00	113.14	0.085619	0.019226
02-12-09	103.04	5.50	2825.00	113.05	0.255411	0.058294
03-12-09	101.98	5.00	2797.00	111.42	0.191575	0.046285
02-12-09	102.86	5.50	2825.00	114.23	0	0
02-12-09	103.04	5.50	2825.00	113.57	0.042568	0.010223
02-12-09	102.83	5.50	2825.00	114.23	0.042568	0.011088
02-12-09	102.86	5.50	2825.00	114.23	0	0
02-12-09	103.04	5.50	2825.00	113.05	0.085137	0.019431
02-12-09	102.83	5.50	2825.00	113.57	1.873014	0.459719
02-12-09	103.04	5.50	2825.00	113.57	0	0
02-12-09	103.04	5.50	2825.00	113.34	0.170274	0.039973

01-27-09	103.22	5.50	2841.00	113.05	0.256858	0.057146
02-12-09	103.04	5.50	2825.00	100.00	0.085137	-0.0059
02-12-09	103.04	5.50	2825.00	113.57	0.085137	0.020446
02-12-09	103.04	5.50	2825.00	113.57	0.042568	0.010223
02-12-09	103.04	5.50	2825.00	113.57	0.638527	0.153346
02-12-09	102.83	5.50	2825.00	114.05	1.575034	0.403655
02-12-09	102.86	5.50	2825.00	113.05	7.321781	1.704128
02-12-09	103.04	5.50	2825.00	113.05	1.234486	0.281756
01-27-09	103.22	5.50	2841.00	113.57	0	0
02-12-09	102.83	5.50	2825.00	113.57	0	0
02-12-09	103.04	5.50	2825.00	113.05	0.127705	0.029147
01-27-09	103.22	5.50	2841.00	113.57	0.256858	0.060185
02-12-09	102.83	5.50	2825.00	113.57	1.277055	0.313445
02-12-09	102.83	5.50	2825.00	113.57	0.255411	0.062689
01-27-09	103.22	5.50	2841.00	113.57	7.234821	1.695215
01-27-09	103.22	5.50	2841.00	113.57	0.470905	0.110339
01-27-09	103.22	5.50	2841.00	113.57	0.085619	0.020062
01-27-09	103.22	5.50	2841.00	113.57	0.727763	0.170525
03-12-09	101.98	5.00	2797.00	111.42	0.15326	0.037028
02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448
01-27-09	103.22	5.50	2841.00	113.57	0.128429	0.030093
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
03-12-09	101.98	5.00	2797.00	111.42	0.191575	0.046285
02-12-09	102.86	5.50	2825.00	113.59	0.595959	0.146
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.88	0.306521	0.077696
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
01-27-09	103.22	5.50	2841.00	113.57	0.342477	0.080247
02-12-09	102.83	5.50	2825.00	113.57	0.085137	0.020896
02-12-09	102.83	5.50	2825.00	113.57	0.723664	0.177619
01-27-09	103.22	5.50	2841.00	113.57	0.428096	0.100309
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
01-27-09	103.22	5.50	2841.00	113.57	0.385286	0.090278
03-12-09	101.98	5.00	2797.00	111.42	1.647548	0.398051

01-27-09	103.22	5.50	2841.00	113.57	0.299667	0.070216
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
02-12-09	102.83	5.50	2825.00	113.77	0.212842	0.053209
03-12-09	101.98	5.00	2797.00	111.48	0.07663	0.018632
03-12-09	101.98	5.00	2797.00	111.42	1.072822	0.259196
01-27-09	103.22	5.50	2841.00	113.57	0	0
01-27-09	103.22	5.50	2841.00	100.00	0.04281	-0.00312
03-12-09	101.98	5.00	2797.00	111.42	2.183959	0.527649
03-12-09	101.98	5.00	2797.00	111.42	0.613041	0.148112
01-27-09	103.22	5.50	2841.00	113.57	10.01744	2.347221
02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448
03-12-09	101.98	5.00	2797.00	111.42	0.536411	0.129598
01-27-09	103.22	5.50	2841.00	113.57	0.941811	0.220679
01-27-09	103.22	5.50	2841.00	113.57	0.984621	0.23071
01-27-09	103.22	5.50	2841.00	113.57	0.128429	0.030093
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
03-12-09	101.98	5.00	2797.00	112.62	0.15326	0.04173
03-12-09	101.98	5.00	2797.00	100.00	0.114945	-0.00582
03-12-09	101.98	5.00	2797.00	111.88	0.459781	0.116543
03-12-09	101.98	5.00	2797.00	111.42	0.344836	0.083313
02-12-09	102.83	5.50	2825.00	113.57	4.256849	1.044817
01-27-09	103.22	5.50	2841.00	113.57	0.085619	0.020062
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
01-27-09	103.22	5.50	2841.00	113.77	0.299667	0.071566
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
03-12-09	101.98	5.00	2797.00	111.42	0.842932	0.203654
03-12-09	101.98	5.00	2797.00	111.42	0.498096	0.120341
01-27-09	103.22	5.50	2841.00	113.57	0.342477	0.080247
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
01-27-09	103.22	5.50	2841.00	113.57	13.3994	3.139659
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.42	0.344836	0.083313
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
02-12-09	102.83	5.50	2825.00	113.57	8.726541	2.141875
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799

03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
03-12-09	101.98	5.00	2797.00	111.42	6.168726	1.490376
03-12-09	101.98	5.00	2797.00	111.42	6.321986	1.527404
01-27-09	103.22	5.50	2841.00	113.57	0.214048	0.050154
03-12-09	101.98	5.00	2797.00	111.42	1.532603	0.37028
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
03-12-09	101.98	5.00	2797.00	111.42	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
03-12-09	101.98	5.00	2797.00	111.42	0.15326	0.037028
03-12-09	101.98	5.00	2797.00	111.42	8.697521	2.101337
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
03-12-09	101.98	5.00	2797.00	111.42	0.114945	0.027771
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
01-27-09	103.22	5.50	2841.00	113.57	1.198668	0.280864
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.42	0.613041	0.148112
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
03-12-09	101.98	5.00	2797.00	111.42	0.191575	0.046285
01-27-09	103.22	5.50	2841.00	113.57	0.04281	0.010031
03-12-09	101.98	5.00	2797.00	111.42	3.103521	0.749816
01-27-09	103.22	5.50	2841.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	2.682055	0.647989
03-12-09	101.98	5.00	2797.00	111.42	0.22989	0.055542
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
03-12-09	101.98	5.00	2797.00	111.42	1.149452	0.27771
02-12-09	102.83	5.50	2825.00	113.57	0.212842	0.052241
03-12-09	101.98	5.00	2797.00	111.42	10.23012	2.471617
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.42	0	0
03-12-09	101.98	5.00	2797.00	111.42	1.187767	0.286967
01-27-09	103.22	5.50	2841.00	100.00	0	0
01-27-09	103.22	5.50	2841.00	113.57	0.899001	0.210648
03-12-09	101.98	5.00	2797.00	112.62	1.992384	0.542493

03-12-09	101.98	5.00	2797.00	111.42	1.379342	0.333252
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
03-12-09	101.98	5.00	2797.00	111.42	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.170274	0.041793
03-12-09	102.44	5.00	2797.00	111.42	0.574726	0.131496
03-12-09	101.98	5.00	2797.00	111.42	0.651356	0.157369
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
03-12-09	101.98	5.00	2797.00	111.42	0.306521	0.074056
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
01-27-09	103.22	5.50	2841.00	113.57	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.127705	0.031345
03-12-09	101.98	5.00	2797.00	111.42	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.255411	0.062689
01-27-09	103.22	5.50	2841.00	113.57	0.556525	0.130401
03-12-09	101.98	5.00	2797.00	111.42	0.15326	0.037028
02-12-09	102.83	5.50	2825.00	113.57	0.042568	0.010448
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
03-12-09	101.98	5.00	2797.00	111.42	0	0
03-12-09	101.98	5.00	2797.00	111.42	1.264397	0.305481
03-12-09	102.44	5.00	2797.00	111.42	11.45621	2.621148
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
03-12-09	102.44	5.00	2797.00	111.42	13.37196	3.059467
02-12-09	102.83	5.50	2825.00	113.57	0	0
03-12-09	101.98	5.00	2797.00	111.42	1.264397	0.305481
03-12-09	101.98	5.00	2797.00	111.42	2.145644	0.518392
03-12-09	101.98	5.00	2797.00	111.42	0.766301	0.18514
03-12-09	101.98	5.00	2797.00	111.42	1.149452	0.27771
02-12-09	102.83	5.50	2825.00	113.57	1.021644	0.250756
03-12-09	101.98	5.00	2797.00	111.42	1.800808	0.435079
03-12-09	101.98	5.00	2797.00	112.62	0.114945	0.031298
03-12-09	101.98	5.00	2797.00	111.42	0.383151	0.09257
01-27-09	103.22	5.50	2841.00	113.57	1.198668	0.280864
03-12-09	101.98	5.00	2797.00	111.42	0.07663	0.018514
03-12-09	101.98	5.00	2797.00	111.42	4.482863	1.083068
03-12-09	101.98	5.00	2797.00	111.42	0.268205	0.064799
03-12-09	101.98	5.00	2797.00	111.42	0.459781	0.111084

03-12-09	101.98	5.00	2797.00	111.42	2.682055	0.647989
03-12-09	101.98	5.00	2797.00	111.42	0.114945	0.027771
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
03-12-09	101.98	5.00	2797.00	111.41	0.114945	0.027739
03-12-09	101.98	5.00	2797.00	100.00	0.344836	-0.01747
03-12-09	101.98	5.00	2797.00	111.41	0.07663	0.018492
03-12-09	101.98	5.00	2797.00	111.88	0	0
03-12-09	101.98	5.00	2797.00	111.41	0.22989	0.055477
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.41	8.352685	2.015672
03-12-09	101.98	5.00	2797.00	111.41	0.15326	0.036985
03-12-09	101.98	5.00	2797.00	111.41	1.034507	0.249648
03-12-09	101.98	5.00	2797.00	111.41	3.754877	0.906128
03-12-09	101.98	5.00	2797.00	111.41	0.22989	0.055477
03-12-09	101.98	5.00	2797.00	111.41	0.114945	0.027739
03-12-09	102.44	5.00	2797.00	111.41	0.344836	0.078801
03-12-09	101.98	5.00	2797.00	111.41	0.07663	0.018492
03-12-09	101.98	5.00	2797.00	111.57	0.22989	0.056449
03-12-09	101.98	5.00	2797.00	111.42	0	0
03-12-09	101.98	5.00	2797.00	111.42	0.038315	0.009257
03-12-09	101.98	5.00	2797.00	111.41	0.306521	0.07397
03-12-09	101.98	5.00	2797.00	111.41	0.191575	0.046231
03-12-09	101.98	5.00	2797.00	111.41	1.762493	0.425325
03-12-09	101.98	5.00	2797.00	111.41	0	0
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
03-12-09	101.98	5.00	2797.00	111.42	1.839123	0.444336
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
03-12-09	101.98	5.00	2797.00	111.41	8.927411	2.154366
03-12-09	101.98	5.00	2797.00	111.57	0.038315	0.009408
03-12-09	101.98	5.00	2797.00	111.88	0.15326	0.038848
03-12-09	101.98	5.00	2797.00	111.88	0.038315	0.009712
03-12-09	101.98	5.00	2797.00	111.41	13.14207	3.171448
03-12-09	101.98	5.00	2797.00	111.41	0	0
02-12-09	102.83	5.50	2825.00	113.57	0.723664	0.177619
03-12-09	101.98	5.00	2797.00	111.42	7.088288	1.712544
03-12-09	102.31	5.00	2797.00	111.42	38.35338	8.913489
03-12-09	101.98	5.00	2797.00	111.41	0.07663	0.018492

03-12-09	102.22	5.00	2797.00	111.42	34.71345	8.154426
01-27-09	103.22	5.50	2841.00	113.88	0.428096	0.103314
01-27-09	103.22	5.50	2841.00	113.57	1.07024	0.250771
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
03-12-09	101.98	5.00	2797.00	111.42	1.609233	0.388794
01-27-09	103.22	5.50	2841.00	113.57	1.02743	0.240741
03-12-09	101.98	5.00	2797.00	111.42	0.919562	0.222168
02-12-09	102.83	5.50	2825.00	113.57	0.55339	0.135826
03-12-09	101.98	5.00	2797.00	111.42	14.32984	3.462115
02-12-09	102.70	5.50	2825.00	113.20	188.1527	45.21097
02-12-09	103.11	6.00	2825.00	114.96	260.1477	64.40125
03-12-09	101.87	5.00	2797.00	111.30	41.64848	10.06386
03-12-09	101.98	5.00	2797.00	111.41	0.268205	0.064723
03-12-09	101.98	5.00	2797.00	111.42	5.210849	1.258951
01-27-09	103.22	5.50	2841.00	113.57	1.113049	0.260802
01-27-09	103.22	5.50	2841.00	113.88	0.385286	0.092982
03-12-09	101.98	5.00	2797.00	111.42	3.946452	0.95347
02-12-09	103.04	5.50	2825.00	113.05	0.766233	0.174883
03-12-09	102.44	5.00	2797.00	111.42	57.51092	13.15834
01-27-09	103.22	5.50	2841.00	113.88	31.07976	7.500586
02-12-09	102.83	5.50	2825.00	113.57	1.106781	0.271652
02-12-09	102.83	5.50	2825.00	113.57	48.65579	11.94226
02-12-09	102.43	5.50	2825.00	112.99	46.82534	11.34012
03-12-09	101.88	5.00	2797.00	111.42	53.87099	13.16611
02-12-09	102.83	5.50	2825.00	113.57	3.618322	0.888094
01-27-09	103.22	5.50	2841.00	113.57	0.856192	0.200617
03-12-09	102.44	5.00	2797.00	111.42	3.793192	0.867872
03-12-09	101.88	5.00	2797.00	111.42	25.51784	6.236579
02-12-09	103.04	5.50	2825.00	113.88	4.256849	1.052412
02-12-09	102.72	5.50	2825.00	113.20	158.7805	38.0731
03-12-09	101.98	5.00	2797.00	111.41	4.061397	0.980098
06-26-09	102.09	5.00	2691.00	113.33	-0.9953	-0.29733
03-12-09	101.98	5.00	2797.00	100.00	0.191575	-0.00971
03-12-09	101.98	5.00	2797.00	111.41	0	0
03-12-09	101.98	5.00	2797.00	112.62	0.114945	0.031298
03-12-09	101.98	5.00	2797.00	111.42	0.191575	0.046285
02-12-09	103.04	5.50	2825.00	113.34	0.297979	0.069952

03-12-09	101.98	5.00	2797.00	111.41	0.07663	0.018492
03-12-09	101.98	5.00	2797.00	111.41	0.114945	0.027739
03-12-09	101.98	5.00	2797.00	111.41	0.038315	0.009246
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
06-26-09	102.09	5.00	2691.00	111.11	-0.14745	-0.03534
03-12-09	101.98	5.00	2797.00	111.10	0.344836	0.08048
03-12-09	101.98	5.00	2797.00	111.41	0	0
03-12-09	101.98	5.00	2797.00	111.41	0	0
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
03-12-09	101.98	5.00	2797.00	111.41	0.07663	0.018492
06-22-09	100.84	5.00	2695.00	111.22	-32.8199	-9.14682
08-13-09	101.90	5.00	2643.00	111.11	-0.72411	-0.18077
02-12-09	102.86	5.50	2825.00	113.59	0.681096	0.166857
03-12-09	101.98	5.00	2797.00	111.42	2.337219	0.564677
06-26-09	102.09	5.00	2691.00	111.11	-0.11059	-0.02651
06-26-09	102.09	5.00	2691.00	111.11	-0.03686	-0.00884
06-22-09	100.84	5.00	2695.00	111.11	-0.25842	-0.07129
06-22-09	100.84	5.00	2695.00	111.11	-0.29534	-0.08148
06-26-09	102.09	5.00	2691.00	111.11	-0.25804	-0.06185
06-22-09	100.65	5.00	2695.00	111.11	-5.90685	-1.66284
06-26-09	102.09	5.00	2691.00	111.11	-0.14745	-0.03534
06-26-09	102.09	5.00	2691.00	111.11	-0.03686	-0.00884
06-26-09	102.09	5.00	2691.00	111.11	-0.36863	-0.08836
06-26-09	102.09	5.00	2691.00	111.11	-6.85652	-1.64343
08-13-09	101.90	5.00	2643.00	111.11	-0.21723	-0.05423
08-13-09	101.90	5.00	2643.00	111.11	-3.87399	-0.96713
06-26-09	102.09	5.00	2691.00	111.11	-0.14745	-0.03534
06-26-09	102.09	5.00	2691.00	111.11	-0.22118	-0.05301
06-26-09	101.99	5.00	2691.00	111.22	-2.83845	-0.69649
08-13-09	101.90	5.00	2643.00	111.22	-0.21723	-0.05485
08-13-09	101.90	5.00	2643.00	111.10	0	0
08-13-09	101.90	5.00	2643.00	111.10	-0.28964	-0.07222
08-13-09	101.90	5.00	2643.00	111.10	-0.36205	-0.09028
06-26-09	101.99	5.00	2691.00	111.10	-0.25804	-0.06252
08-13-09	101.90	5.00	2643.00	111.11	-2.93264	-0.73213
06-26-09	102.09	5.00	2691.00	111.10	-0.2949	-0.0706
08-13-09	101.90	5.00	2643.00	111.11	-0.07241	-0.01808

03-12-09	101.98	5.00	2797.00	111.49	0.038315	0.009328
08-13-09	101.90	5.00	2643.00	111.11	-0.6879	-0.17173
08-13-09	101.90	5.00	2643.00	111.11	-0.36205	-0.09039
06-22-09	100.65	5.00	2695.00	111.11	-5.53767	-1.55892
08-13-09	101.90	5.00	2643.00	111.11	-9.34101	-2.33196
06-26-09	101.99	5.00	2691.00	111.11	-0.33177	-0.08048
06-26-09	102.09	5.00	2691.00	111.11	-0.33177	-0.07952
06-26-09	101.99	5.00	2691.00	111.11	-6.3773	-1.54703
08-13-09	101.90	5.00	2643.00	111.11	-0.14482	-0.03615
08-13-09	101.90	5.00	2643.00	111.11	-0.03621	-0.00904
08-13-09	101.90	5.00	2643.00	111.11	-0.03621	-0.00904
08-13-09	101.90	5.00	2643.00	111.10	-0.10862	-0.02708
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
06-26-09	101.99	5.00	2691.00	111.10	-0.07373	-0.01786
08-13-09	101.90	5.00	2643.00	111.11	-0.32585	-0.08135
08-13-09	101.90	5.00	2643.00	111.11	-0.14482	-0.03615
08-13-09	101.90	5.00	2643.00	111.11	-1.41201	-0.35251
08-13-09	101.90	5.00	2643.00	111.11	-0.28964	-0.07231
08-13-09	101.90	5.00	2643.00	111.11	-1.04996	-0.26212
08-13-09	101.90	5.00	2643.00	111.11	-0.14482	-0.03615
06-26-09	101.99	5.00	2691.00	111.11	-0.14745	-0.03577
08-13-09	101.90	5.00	2643.00	111.11	-30.6298	-7.64665
08-13-09	101.90	5.00	2643.00	111.11	-2.53438	-0.6327
06-22-09	100.65	5.00	2695.00	111.22	-4.50397	-1.28064
06-26-09	101.99	5.00	2691.00	111.11	-0.2949	-0.07154
08-13-09	101.90	5.00	2643.00	111.10	0	0
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
06-26-09	102.09	5.00	2691.00	111.11	-0.11059	-0.02651
08-13-09	101.90	5.00	2643.00	111.11	-1.08616	-0.27116
08-13-09	101.90	5.00	2643.00	111.11	-0.25344	-0.06327
06-26-09	101.99	5.00	2691.00	111.11	-0.07373	-0.01788
08-13-09	101.90	5.00	2643.00	111.11	-0.90514	-0.22596
06-26-09	102.09	5.00	2691.00	111.11	-0.22118	-0.05301
06-26-09	101.99	5.00	2691.00	111.11	-0.14745	-0.03577
08-13-09	101.90	5.00	2643.00	111.11	-0.32585	-0.08135
08-13-09	101.90	5.00	2643.00	111.11	-0.25344	-0.06327
08-13-09	101.90	5.00	2643.00	100.00	-0.21723	0.011187

06-26-09	101.99	5.00	2691.00	111.11	-0.36863	-0.08942
08-13-09	101.90	5.00	2643.00	111.11	-0.18103	-0.04519
08-13-09	101.90	5.00	2643.00	111.17	-0.25344	-0.0637
06-26-09	102.09	5.00	2691.00	111.11	-5.52945	-1.32535
08-13-09	101.90	5.00	2643.00	111.11	-0.10862	-0.02712
08-13-09	101.90	5.00	2643.00	111.62	-0.21723	-0.05721
06-26-09	101.99	5.00	2691.00	111.11	-3.72316	-0.90318
06-26-09	101.99	5.00	2691.00	111.11	-0.36863	-0.08942
06-26-09	102.09	5.00	2691.00	111.11	-0.11059	-0.02651
08-13-09	101.90	5.00	2643.00	111.11	-0.14482	-0.03615
06-26-09	101.99	5.00	2691.00	111.11	-0.22118	-0.05365
06-26-09	101.99	5.00	2691.00	111.11	-6.26671	-1.5202
08-13-09	101.90	5.00	2643.00	111.11	-2.78782	-0.69597
06-26-09	102.09	5.00	2691.00	111.11	-0.36863	-0.08836
06-26-09	102.09	5.00	2691.00	111.11	-6.00867	-1.44021
06-26-09	101.99	5.00	2691.00	111.11	-1.21648	-0.2951
06-26-09	102.09	5.00	2691.00	111.11	0	0
08-13-09	101.90	5.00	2643.00	111.62	-0.32585	-0.08581
06-26-09	101.99	5.00	2691.00	111.11	-0.33177	-0.08048
08-13-09	101.90	5.00	2643.00	111.11	-0.25344	-0.06327
01-27-09	103.22	5.50	2841.00	113.57	9.931825	2.327159
06-26-09	102.09	5.00	2691.00	111.11	-0.2949	-0.07069
08-13-09	101.90	5.00	2643.00	111.73	-0.03621	-0.00965
08-13-09	101.90	5.00	2643.00	111.11	-0.25344	-0.06327
02-12-09	102.43	5.50	2825.00	113.27	16.30373	4.053188
02-12-09	102.43	5.50	2825.00	113.27	28.22291	7.016355
08-13-09	101.90	5.00	2643.00	111.11	-0.54308	-0.13558
08-13-09	101.90	5.00	2643.00	111.11	-0.10862	-0.02712
06-26-09	102.09	5.00	2691.00	111.44	-0.14745	-0.03663
06-26-09	102.09	5.00	2691.00	111.11	-0.40549	-0.09719
06-26-09	102.09	5.00	2691.00	111.11	-0.25804	-0.06185
06-26-09	102.09	5.00	2691.00	100.00	-0.40549	0.022519
06-26-09	102.09	5.00	2691.00	111.11	-0.18432	-0.04418
08-13-09	101.90	5.00	2643.00	111.11	0	0
08-13-09	101.90	5.00	2643.00	111.11	-0.18103	-0.04519
08-13-09	101.90	5.00	2643.00	111.11	-0.07241	-0.01808
08-13-09	101.90	5.00	2643.00	111.11	-0.10862	-0.02712

06-26-09	102.09	5.00	2691.00	111.22	-5.89808	-1.43016
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
08-13-09	101.90	5.00	2643.00	111.62	-0.07241	-0.01907
08-13-09	101.90	5.00	2643.00	111.11	-3.62055	-0.90386
08-13-09	101.90	5.00	2643.00	111.11	-4.19984	-1.04848
06-26-09	102.09	5.00	2691.00	111.11	-0.25804	-0.06185
06-26-09	102.09	5.00	2691.00	111.11	-0.2949	-0.07069
06-26-09	101.99	5.00	2691.00	111.44	-0.03686	-0.00926
06-26-09	102.09	5.00	2691.00	100.00	-0.25804	0.01433
06-26-09	102.09	5.00	2691.00	111.17	-0.07373	-0.01779
06-26-09	102.09	5.00	2691.00	111.62	-0.22118	-0.05598
06-26-09	102.09	5.00	2691.00	111.11	-0.2949	-0.07069
06-26-09	101.99	5.00	2691.00	111.11	0	0
08-13-09	101.90	5.00	2643.00	111.22	-8.87034	-2.2397
08-13-09	101.90	5.00	2643.00	111.22	-0.14482	-0.03657
06-22-09	98.48	4.50	2695.00	109.85	-33.1596	-11.5251
06-22-09	98.48	4.50	2695.00	109.85	-18.2079	-6.32839
06-26-09	102.09	5.00	2691.00	111.11	-0.07373	-0.01767
08-13-09	101.90	5.00	2643.00	100.00	-0.07241	0.003729
08-13-09	101.90	5.00	2643.00	111.22	0	0
06-19-09	101.85	5.00	2698.00	111.11	-0.22175	-0.05455
08-13-09	101.90	5.00	2643.00	111.22	-0.03621	-0.00914
06-26-09	102.09	5.00	2691.00	111.11	-0.36863	-0.08836
02-12-09	103.08	5.50	2825.00	113.57	36.14065	8.643074
02-12-09	103.07	5.50	2825.00	113.57	146.3505	35.03662
01-27-09	103.22	5.50	2841.00	113.57	59.67657	13.98302
01-27-09	103.22	5.50	2841.00	113.57	37.15872	8.706786
02-12-09	103.04	5.50	2825.00	112.83	28.52089	6.363177
01-27-09	103.22	5.50	2841.00	113.05	0.428096	0.095244
01-27-09	103.22	5.50	2841.00	113.59	21.40479	5.021723
01-13-09	103.73	5.50	2855.00	113.05	21.51027	4.492952
02-12-09	103.50	5.50	2825.00	113.05	16.85712	3.654326
03-12-09	102.66	5.50	2797.00	113.57	42.14658	10.63107
06-19-09	101.85	5.00	2698.00	111.11	-0.22175	-0.05455
06-19-09	101.85	5.00	2698.00	111.11	-21.3992	-5.26434
06-22-09	100.65	5.00	2695.00	111.11	-7.23589	-2.03698
08-13-09	101.90	5.00	2643.00	111.11	-2.49818	-0.62366

08-13-09	101.90	5.00	2643.00	111.11	-0.14482	-0.03615
08-13-09	101.90	5.00	2643.00	111.11	-0.36205	-0.09039
06-26-09	102.09	5.00	2691.00	111.11	0	0
06-22-09	100.84	5.00	2695.00	111.11	-0.33226	-0.09166
06-19-09	101.85	5.00	2698.00	111.11	-0.18479	-0.04546
08-13-09	101.90	5.00	2643.00	111.11	-0.79652	-0.19885
06-22-09	100.84	5.00	2695.00	112.30	-0.22151	-0.06821
06-22-09	100.84	5.00	2695.00	111.22	-0.47993	-0.13376
06-26-09	102.09	5.00	2691.00	111.22	-0.22118	-0.05363
08-13-09	101.90	5.00	2643.00	111.22	-0.36205	-0.09142
06-22-09	100.84	5.00	2695.00	111.11	-0.14767	-0.04074
06-22-09	100.84	5.00	2695.00	111.22	-0.11075	-0.03087
03-31-09	100.34	4.00	2778.00	107.86	76.10959	18.73388
06-26-09	101.99	5.00	2691.00	111.22	-8.03614	-1.97188
06-26-09	102.09	5.00	2691.00	111.22	-0.14745	-0.03575
06-22-09	100.84	5.00	2695.00	112.30	-5.53767	-1.70523
06-26-09	101.99	5.00	2691.00	111.22	-5.52945	-1.3568
08-13-09	101.90	5.00	2643.00	111.22	-3.14988	-0.79532
06-22-09	100.84	5.00	2695.00	111.22	-1.25521	-0.34982
08-13-09	101.90	5.00	2643.00	100.00	-0.18103	0.009323
02-12-09	103.04	5.50	2825.00	113.88	7.449486	1.841721
08-13-09	101.90	5.00	2643.00	111.17	-0.14482	-0.0364
06-19-09	101.85	5.00	2698.00	111.11	-24.0233	-5.90988
02-12-09	103.04	5.50	2825.00	113.05	13.28137	3.031305
02-12-09	103.04	5.50	2825.00	113.05	33.41627	7.626841
06-26-09	102.09	5.00	2691.00	111.22	-0.11059	-0.02682
06-26-09	101.99	5.00	2691.00	111.22	-0.07373	-0.01809
06-26-09	101.99	5.00	2691.00	111.22	-0.25804	-0.06332
06-26-09	102.09	5.00	2691.00	100.00	-0.14745	0.008189
06-26-09	102.09	5.00	2691.00	111.22	-0.03686	-0.00894
06-22-09	100.65	5.00	2695.00	111.22	-5.53767	-1.57456
06-26-09	102.09	5.00	2691.00	111.55	-0.11059	-0.02778
06-26-09	102.09	5.00	2691.00	111.75	-0.33177	-0.08517
06-22-09	100.84	5.00	2695.00	111.22	-0.25842	-0.07202
06-22-09	100.84	5.00	2695.00	111.22	-0.11075	-0.03087
06-22-09	98.48	4.50	2695.00	109.85	-3.92067	-1.36268
06-22-09	100.84	5.00	2695.00	111.22	-0.03692	-0.01029

08-13-09	101.90	5.00	2643.00	112.30	-0.21723	-0.06126
08-13-09	101.90	5.00	2643.00	111.22	-1.3396	-0.33824
08-13-09	101.90	5.00	2643.00	111.22	-2.06371	-0.52107
08-13-09	101.90	5.00	2643.00	111.22	-0.25344	-0.06399
06-26-09	102.09	5.00	2691.00	111.22	-0.07373	-0.01788
06-22-09	98.48	4.50	2695.00	109.85	-1.86066	-0.6467
08-13-09	101.90	5.00	2643.00	111.22	-0.61549	-0.15541
06-22-09	98.48	4.50	2695.00	109.85	-7.17682	-2.4944
06-22-09	98.48	4.50	2695.00	109.85	-1.19614	-0.41573
06-22-09	98.48	4.50	2695.00	109.85	-58.3117	-20.267
06-22-09	98.48	4.50	2695.00	109.85	-9.07071	-3.15265
03-11-10	105.58	5.50	2433.00	113.23	-0.14665	-0.02897
02-19-09	103.11	6.00	2818.00	113.89	46.32329	10.45359
02-19-09	102.88	5.50	2818.00	114.95	106.4548	29.42178
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