To Chairman Dennis Kucinich:

At the request of the Domestic Policy Subcommittee, I have done a statistical analysis of the Merrill Lynch weekly loss data for the 12 weeks from September 26 to December 12, 2008. The purpose of the analysis was to determine what loss trends could reasonably be deduced from the loss data available to decision makers at three points in time: November 7, November 14, and December 12. I have used the widely accepted and highly standardized least squares regression curve fitting technique to test both a straight (linear) and a curved (parabolic or second order) fit to the data. This has resulted in the following conclusions:

1. Looking first at the 7 weeks of loss data available by November 7 shows:

a. It is clear that there is a strong downward trend in the data that is almost certainly not due to chance.

b. A straight line downward trend showing a steady $701 million loss per week fits the data quite well.

c. If one were trying to determine whether the loss per week might be increasing or decreasing rather than staying steady at $701 million per week (i.e. by fitting a curved rather than a straight line), there is i) no evidence that the loss per week is decreasing, and ii) some evidence that the losses per week are increasing.

The best curved (parabolic) line fit to the data shows the weekly losses worsening to $1250 million loss per week by November 7--and, when projected forward, worsening every week thereafter due to the downward curvature of the fitted line. Note that this curved line fit only improves the accuracy (root mean square error) of the fit by about 5%, so the case for increasing losses per week by November 7 is not overwhelming.

2. Adding one more week of data to assess the situation as of November 14 shows:

a. Fitting a straight line downward trend yields a steady $1007 million lost per week, over 40% worse than the November 7 assessment.

b. Adding in the November 14 week significantly strengthens the evidence for deteriorating (as opposed to steady) weekly losses. The curved line fit now shows the weekly loss deteriorating to $2400 million per week by November 14, nearly double the November 7 curved line assessment. Relative to the straight line fit, the curved line now improves the accuracy of the fit by 51% (root mean square error)--an improvement in accuracy that it would be imprudent to ignore.

3. Looking at the 12 weeks of loss data available by December 12 shows:

a. Assuming steady weekly losses, the best straight line fit shows $1276 million lost per week, over 80% worse than the November 7 weekly loss estimate--and almost identical to the November 7 curved line assessment.

b. Assuming the possibility of a deteriorating trend, the curved line fit yields a weekly loss that has worsened to $2030 million by December 12, not as bad as the November 14 estimate but still 62% higher than the November 7 curved line weekly loss. The curved line fit yields 14% better accuracy (root mean square error) than the straight line fit, stronger evidence for a deteriorating trend than on November 7, but not strong enough to make the curved line fit an obvious choice.

c. Given the weekly loss data available to decision makers on November 14 as compared to the data available on December 12, the evidence for a constantly deteriorating (i.e. curved) trend is much stronger on November 14 than it is on December 12. This follows from the fact that the November 14 curved fit improves accuracy over the straight line fit by 51% whereas the December 12 curved fit only yields 14% improvement.

As a caveat to the above conclusions, it is important to keep in mind that all of the above numerical estimates are necessarily quite imprecise because statistical sample sizes of 7 to 12 data points are much too small for, say, plus or minus 10% accuracy. That caveat does not invalidate any of the above conclusions as to what a decision maker could reasonably conclude on November 7, November 14, and December 12.

For documentary support of the above, I have attached the detailed results of the computer runs on which I have based these conclusions.

Pierre M. Sprey
June 9, 2009

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     +-------------------------------+
     |    qtd      ytd   week   week2 |
     |-------------------------------|
  1. |  -8412   -19824      1      1 |
  2. |   -323   -19039      2      4 |
  3. |   -650   -20312      3      9 |
  4. |   -907   -20569      4     16 |
  5. |  -1609   -21271      5     25 |
     |-------------------------------|
  6. |  -3778   -23440      6     36 |
  7. |  -3451   -23113      7     49 |
  8. |  -7897   -27559      8     64 |
  9. |  -8933   -28596      9     81 |
 10. | -11037   -30699     10    100 |
     |-------------------------------|
 11. |  -9182   -28845     11    121 |
 12. | -13863   -33041     12    144 |
     +-------------------------------+

. plot ytd week
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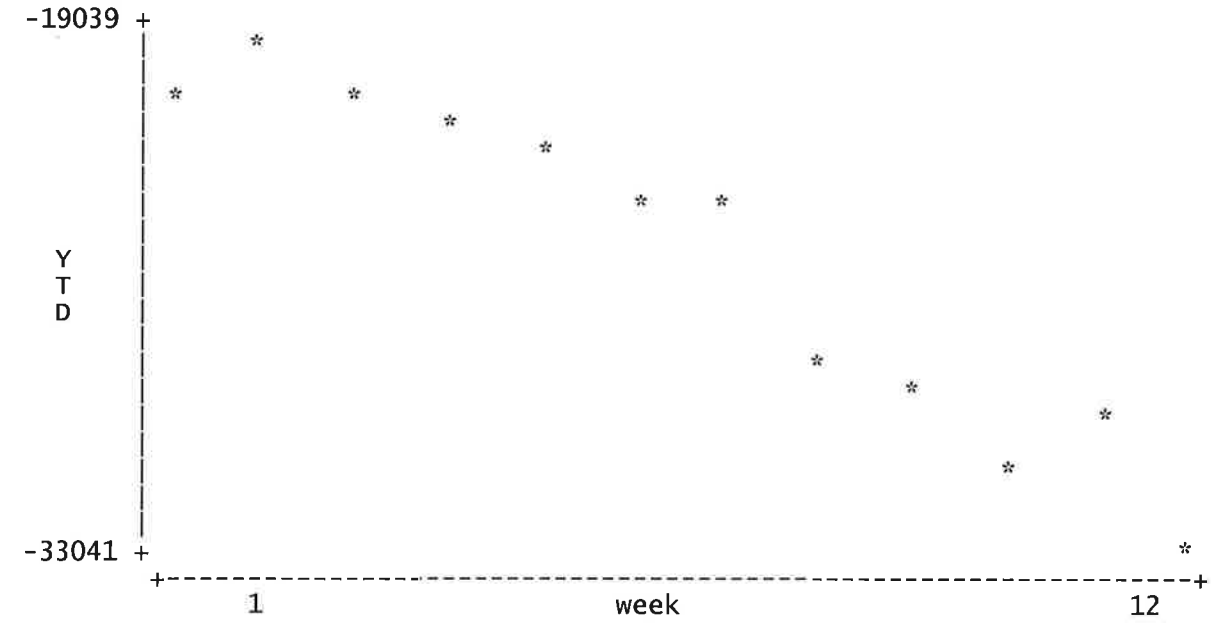


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. *       Weeks 1-7
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. reg ytd week if _n<8
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      Source |       SS       df       MS              Number of obs =       7
-------------+------------------------------           F(  1,     5) =   26.73
       Model |    13759228     1    13759228           Prob > F      =  0.0036
    Residual |  2574094.86     5  514818.971           R-squared     =  0.8424
-------------+------------------------------           Adj R-squared =  0.8109
       Total |  16333322.9     6  2722220.48           Root MSE      =  717.51

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |        -701   135.5964    -5.17   0.004    -1049.562   -352.4383
       _cons |  -18277.14   606.4057   -30.14   0.000    -19835.96   -16718.33
------------------------------------------------------------------------------

. * F-test and (equivalent) t-test indicate 0.36 percent chance of
. * random occurrence if there is no linear relation
.
. reg ytd week week2 if _n<8

      Source |       SS       df       MS              Number of obs =       7
-------------+------------------------------           F(  2,     4) =   15.42
       Model |    14457747     2  7228873.52           Prob > F      =  0.0132
    Residual |  1875575.81     4  468893.952           R-squared     =  0.8852
-------------+------------------------------           Adj R-squared =  0.8278
       Total |  16333322.9     6  2722220.48           Root MSE      =  684.76

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |   28.52381   611.5544     0.05   0.965    -1669.423    1726.471
       week2 |  -91.19048   74.71326    -1.22   0.289    -298.6277    116.2468
       _cons |  -19371.43   1067.119   -18.15   0.000    -22334.23   -16408.63
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. * F-test indicates 1.32 percent chance of random occurrence given
. * that there is no quadratic relation, but neither coefficient is
. * significant even at the 10 percent level and the second-order term
. * only marginally improves the fit.
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. *       Weeks 1-8
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. reg ytd week if _n<9

      Source |       SS       df       MS              Number of obs =       8
-------------+------------------------------           F(  1,     6) =   24.47
       Model |    42603150     1    42603150           Prob > F      =  0.0026
    Residual |  10447476.9     6  1741246.14           R-squared     =  0.8031
-------------+------------------------------           Adj R-squared =  0.7702
       Total |  53050626.9     7  7578660.98           Root MSE      =  1319.6

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |  -1007.155    203.613    -4.95   0.003    -1505.378   -508.9318
       _cons |  -17358.68   1028.195   -16.88   0.000    -19874.58   -14842.78
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. * F-test and (equivalent) t-test indicate 0.26 percent chance of
. * random occurrence if there is no linear relation
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. reg ytd week week2 if _n<9

      Source |       SS       df       MS              Number of obs =       8
-------------+------------------------------           F(  2,     5) =   32.25
       Model |    49234246     2    24617123           Prob > F      =  0.0014
    Residual |  3816380.86     5  763276.173           R-squared     =  0.9281
-------------+------------------------------           Adj R-squared =  0.8993
       Total |  53050626.9     7  7578660.98           Root MSE      =  873.66

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |   780.8988   621.4349     1.26   0.264    -816.5506    2378.348
       week2 |  -198.6726   67.40408    -2.95   0.032    -371.9403   -25.4049
       _cons |  -20338.77   1218.878   -16.69   0.000    -23471.99   -17205.54
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. * F-test indicates 0.14 percent chance of random occurrence given
. * that there is no quadratic relation and the second-order term
. * improves the fit.
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. *       Weeks 1-12
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. reg ytd week

      Source |       SS       df       MS              Number of obs =      12
-------------+------------------------------           F(  1,    10) =  110.08
       Model |   232938917     1   232938917           Prob > F      =  0.0000
    Residual |  21160593.7    10  2116059.37           R-squared     =  0.9167
-------------+------------------------------           Adj R-squared =  0.9084
       Total |   254099511    11  23099955.5           Root MSE      =  1454.7

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |  -1276.301   121.6455    -10.49   0.000    -1547.344   -1005.258
       _cons |  -16396.38   895.2863    -18.31   0.000     -18391.2   -14401.56
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. * F-test and (equivalent) t-test indicate 0.00 percent chance of
. * random occurrence if there is no linear relation
.
. reg ytd week week2

      Source |       SS       df       MS              Number of obs =      12
-------------+------------------------------           F(  2,     9) =   72.29
       Model |   239209821     2   119604910           Prob > F      =  0.0000
    Residual |    14889690     9     1654410           R-squared     =  0.9414
-------------+------------------------------           Adj R-squared =  0.9284
       Total |   254099511    11  23099955.5           Root MSE      =  1286.2

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         ytd |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        week |  -385.2098   470.1662    -0.82   0.434      -1448.8    678.3801
       week2 |  -68.54545    35.2075    -1.95   0.083    -148.1903    11.09944
       _cons |  -18475.59   1329.365   -13.90   0.000    -21482.82   -15468.36
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. * F-test indicates 0.00 percent chance of random occurrence given
. * that there is no quadratic relation and the second-order term
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. * improves the fit.
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