# Exhibit 6

**Page 1**

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1              UNITED STATES DISTRICT COURT
2            NORTHERN DISTRICT OF CALIFORNIA
3                   OAKLAND DIVISION
4
5   THE APPLE iPOD iTUNES        Lead Case No. C 05-00037
    ANTI-TRUST LITIGATION
6
7   _____
8   This Document Relates To:
9   ALL ACTIONS
10  _____
11
12
13
14         CONFIDENTIAL - ATTORNEYS' EYES ONLY
15    VIDEOTAPED DEPOSITION OF ROGER G. NOLL, PH.D.
16            Wednesday, December 18, 2013
17                 Palo Alto, California
18
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21
22
23  Reported by:
    Darcy J. Brokaw
24  RPR, CRR, CSR No. 12584
25  Job No. 10008944
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13         CONFIDENTIAL - ATTORNEYS' EYES ONLY
14
15       Videotaped Deposition of ROGER G. NOLL, PH.D.,
16  taken on behalf of the Defendant, at 1755 Embarcadero
17  Road, Palo Alto, California, beginning at 9:06 a.m. and
18  ending at 11:54 p.m., on Wednesday, December 18, 2013,
19  before Darcy J. Brokaw, CSR No. 12584.
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12          MS. BERNAY:  Objection.  Argumentative.
13   BY MR. KIERNAN:
14          Q.  It would be column A divided by 1 plus
15   column B times column B; isn't that correct?
16          MS. BERNAY:  Objection.  Vague.
17          THE WITNESS:  It would be explain --
18   explain it to me again.
19   BY MR. KIERNAN:
20          Q.  It would be --
21          A.  The actual overcharge would be -- so
22   the -- what the percentage damages is is the
23   percentage of the calculation you get from all the
24   independent variables, which is an estimate of the
25   transaction price you actually have.  And the

1    transaction price is -- has that overcharge of that
2    amount.  All right.
3          So I'm not sure I understand --
4          Q.  I'm focusing on the formula that's in C.
5          A.  Yes.
6          Q.  And the formula in C is taking the
7    percentage of the weighted average price.  And my
8    question is --
9          A.  That is the existing price.  It's not the
10   but-for price.
11          Q.  Right.  And what I'm asking is:  Isn't the
12   correct formula to determine the price overcharge
13   A divided by 1 plus column B times column B --
14          MS. BERNAY:  Objection --
15   BY MR. KIERNAN:
16          Q.  -- because column B reflects the change in
17   percentage between --
18          A.  Yes, you're right --
19          Q.  -- the but-for price and --
20          (Reporter admonishes.)
21          THE WITNESS:  Yes, the 2.3.8 is an
22   approximation of what the -- what the exactly
23   precise calculation would be, yes.
24   BY MR. KIERNAN:
25          Q.  Okay.  If the residual errors in the

1    regression are correlated within a particular group
2    and you don't do anything to correct for that, what
3    would be the impact on the reported standard errors?
4          MS. BERNAY:  Objection.  Vague and
5    ambiguous.
6          THE WITNESS:  I didn't completely follow
7    the question.  Ask it again.
8    BY MR. KIERNAN:
9          Q.  If the residual errors in the regression
10   are correlated within a particular group and you
11   don't do anything to correct for that, what would be
12   the impact on the reported standard errors?
13          MS. BERNAY:  Same objection.
14          THE WITNESS:  It could be either way.  It
15   could make them higher or it could make them lower,
16   depending on the nature of the correlation.
17   BY MR. KIERNAN:
18          Q.  And why would it impact the reported
19   standard errors?
20          A.  Well, it's all built up in the -- in the
21   nature of the assumptions one makes in doing a
22   regression analysis, which is an independence of the
23   standard errors.  And if the standard errors -- if
24   the -- if the random shock that is --
25          (Reporter inquires.)

1          THE WITNESS:  If the random shock that is
2    in the regression equation does not satisfy the
3    independence assumption, then the effect on the
4    standard errors of the coefficients could be either
5    to elevate them or to reduce them, depending on the
6    nature of the violation of the independence
7    assumption.
8    BY MR. KIERNAN:
9          Q.  Okay.  And are there standard statistical
10   tests to test whether the residual errors are
11   correlated within a particular group?
12          MS. BERNAY:  Objection.  Vague.
13          THE WITNESS:  There are many such tests
14   and many such corrections.  But the effect is -- the
15   existence of even statistically significant
16   correlations is small unless those correlations are
17   high.  All right.
18          So the corrections for autocorrelation of
19   residuals are not something that actually matters in
20   the vast majority of cases because the -- it's
21   almost never the case there's no correlation in
22   residual errors, but it's almost never the case that
23   making a correction for the auto- -- the correlation
24   that does exist matters in terms of the regression.
25          It's also the case here that we're not

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1 talking about a source of bias in the coefficients.
2 We're talking about a source of bias in the
3 estimated statistical significance, the --
4 BY MR. KIERNAN:
5  **Q.  The standard errors?**
6  A.  Yeah, the values of the -- the expected
7 value of the regression coefficients is not
8 affected.
9  **Q.  The coefficients aren't affected, but the**
10 **calculations of the standard errors are affected?**
11  A.  Right, the calculations of the standard
12 errors are affected, but the -- but the estimated
13 effect of the independent variable is the same, the
14 expected estimated effect.
15  **Q.  And if the residual errors are correlated**
16 **within a particular group, the standard errors could**
17 **either be overstated or understated?**
18  A.  Yes.
19  **Q.  Without a correction?**
20  A.  They could be.  Although, again, the --
21 it's not -- it's not a dichotomous issue.  They --
22 A, they may be affected, and B, the magnitude of the
23 effect depends on the exact conditions.
24  **Q.  And to know the magnitude of effect, you'd**
25 **have to test it, you'd have to run one of the**

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1 standard statistical tests?
2  MS. BERNAY:  Objection.  Calls for
3 speculation.
4  THE WITNESS:  Well, actually, that's not
5 what most -- what typically --
6 BY MR. KIERNAN:
7  **Q.  Can you just eyeball it?**
8  A.  -- happens.
9  (Reporter inquires.)
10 BY MR. KIERNAN:
11  **Q  Can you just eyeball it?**
12  MS. BERNAY:  Objection.  Vague.
13  THE WITNESS:  Can I finish my first answer
14 before I answer the next question?
15 BY MR. KIERNAN:
16  **Q.  Yes.**
17  A.  Okay.  It is the case that if you plot the
18 errors, you will know from experience if you
19 actually have a problem that is causing the
20 regression equation to be unreliable.  But so
21 "eyeball" is sort of a bizarre word.
22  What you actually do is you look at the
23 actual scatter plot of points around the regression
24 line and see if there is a clustering of
25 observations above and below it.  The problem with

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1 that -- that's a good way to see if there's positive
2 error correlation, but it's not a good way to see if
3 there's negative error correlation.
4  And the second point is that the nature of
5 the error correlation may be that it's dependent on
6 particular combinations of variables; and that one,
7 the standard tests wouldn't even tell you that it
8 exists.
9  **Q.  In this case, did you do anything to check**
10 **whether the residual errors in your regression set**
11 **forth in Exhibits 3A and 3B to Noll 10 are**
12 **correlated with any particular group?**
13  MS. BERNAY:  Objection.  Vague and
14 ambiguous.
15  THE WITNESS:  What do you mean by "group"?
16 BY MR. KIERNAN:
17  **Q.  Within any group.**
18  A.  What do you mean, "a group"?  I don't
19 understand what you mean by a group.
20  **Q.  We've been using group for the last ten**
21 **minutes.**
22  MS. BERNAY:  Objection.  Argumentative.
23 BY MR. KIERNAN:
24  **Q.  Same group that you've -- the same group**
25 **that you've been referring to.**

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1  A.  I didn't refer to a group.  I don't know
2 what you're talking about.  I know I fully
3 intended --
4  **Q.  You used the term "cluster" --**
5  (Reporter admonishes.)
6 BY MR. KIERNAN:
7  **Q  You used the word cluster, within a**
8 **cluster.**
9  A.  I don't agree that there are any clusters
10 here.
11  MS. BERNAY:  Objection.
12 BY MR. KIERNAN:
13  **Q.  That's not my question, Dr. Noll.  I asked**
14 **you, did you do anything to check whether the**
15 **residual errors in your regressions set forth in**
16 **Exhibit 3A and 3B are correlated within any cluster**
17 **or group?**
18  MS. BERNAY:  Objection.  Asked and
19 answered.
20  THE WITNESS:  I don't know what you mean
21 by a group.  And you used the word "or," and I don't
22 believe there are any clusters.  So how can I test
23 for something when I don't -- I think it either
24 doesn't exist or I don't understand what you're
25 asking?

1          What is it you're asking?  Can't you just
2  give me an example of what you mean by a group, and
3  then we won't have to discuss it?
4  BY MR. KIERNAN:
5          Q.  So you don't understand the question?
6          A.  I don't understand what you mean by a
7  group, no.  I don't know what you have in mind.
8          Q.  And you don't know what I mean by cluster?
9          MS. BERNAY:  Objection --
10         THE WITNESS:  I know what you mean by a
11  cluster, and there aren't any in this particular
12  regression.
13  BY MR. KIERNAN:
14         Q.  How do you know?
15         A.  Because I know what cluster analysis is,
16  and it doesn't apply to this regression because this
17  isn't a sample.
18         Q.  What did you do to determine if there were
19  clusters?  What statistical tests did you apply?
20         MS. BERNAY:  Objection.
21         THE WITNESS:  I looked at the definition
22  of a cluster, and it doesn't apply to anything in
23  this regression.  I know -- I know what cluster
24  analysis is, and it doesn't apply to this
25  regression, notwithstanding what many of your

1  experts have said.  They're just not right.
2  BY MR. KIERNAN:
3          Q.  Anything else other than looking at a
4  definition?
5          MS. BERNAY:  Objection.  Argumentative.
6          THE WITNESS:  I know -- the report, about
7  a third of this report is about what cluster
8  analysis is and what kinds of problems you apply to
9  it and why this isn't a cluster sample problem.  All
10  right.
11         So, yes, there it is.  I've cited articles
12  in the professional literature of which I not only
13  have read, but I actually know what they do.  I have
14  taught this stuff.  So I know what I'm talking
15  about.  And there's references here.  It's not that
16  I just read a definition and decided that something
17  didn't apply.
18         But I know, just from knowing what cluster
19  analysis is, that it doesn't apply here.
20  BY MR. KIERNAN:
21         Q.  You just know it when you see it?
22         MS. BERNAY:  Objection.  Argumentative,
23  misstates his prior testimony.
24         Come on, David.
25         THE WITNESS:  That's complete nonsense.

1  There is --
2  BY MR. KIERNAN:
3          Q.  I'm just trying to understand what you did
4  other than reading some books to determine if there
5  are clusters in the case.
6          MS. BERNAY:  Objection.  Argumentative.
7          THE WITNESS:  There is no such thing as a
8  test for whether you ought to use cluster analysis
9  in a regression that doesn't satisfy the conditions
10  for clustering.
11  BY MR. KIERNAN:
12         Q.  Okay.  That's what you teach your
13  students?
14         MS. BERNAY:  Objection.  Argumentative.
15         THE WITNESS:  Of course it is.
16  BY MR. KIERNAN:
17         Q.  On page 34 of Noll 10 -- let me know when
18  you get there.
19         A.  I'm there.
20         Q.  The first paragraph, the last third, you
21  state that "Professors Murphy and Topel do not test
22  whether the mean residual errors from this procedure
23  are statistically significantly different from zero,
24  which would have to be the case if the errors within
25  a cluster are correlated."

1          A.  Yes.
2          Q.  Did you perform that analysis?
3          A.  No, because I don't believe there are
4  clusters.  The premise of that paragraph is if you
5  assume a cluster analysis is appropriate, here's
6  something you do.  And they didn't do it.  But I
7  don't think you should even do that because it's not
8  a cluster sample problem.
9          Q.  If it turns out that within a group,
10  within a cluster -- we can use the one defined by
11  Professors Murphy and Topel -- the mean residual
12  errors are statistically significantly different
13  from zero, what would that tell you?
14         A.  Nothing.
15         Q.  Why not?
16         A.  Because as I said before, you only get
17  that far if you have a cluster sampling problem, and
18  we don't have a cluster sampling problem.  So
19  there's no point in testing for cluster, the
20  presence of clustering effects if you don't have a
21  cluster to begin with.
22         This is a paragraph written on if there --
23  if it were a sample -- if the way I had done the
24  analysis was to sample some transactions according
25  to a subset of the models of iPods that were out

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1  there, so instead of having 100-odd iPod models, I
2  only had 20, and within those 20, I had just drawn a
3  sample of transactions instead of looking at the
4  entire universe, then, in principle, there might be
5  a clustering problem.  But when you don't have a
6  sample of either the models or the transactions,
7  it's not a cluster problem.
8           So testing for cluster effects is a
9  non sequitur.  It's inappropriate, because you don't
10  have cluster samples.
11       Q.  Okay.  And other than that basis that
12  there's not a clustering problem because it's not a
13  sample from a population, any other reason, any
14  other basis for your opinion that there's not a
15  clustering issue?
16       A.  Only the fact it doesn't satisfy the
17  conditions for doing cluster analysis?
18       Q.  The one that you just described.
19       A.  Yes.  That's why it isn't a cluster
20  problem, is because it's not a cluster sample.  And
21  cluster sampling is a procedure you use when you are
22  sampling on both groups and people within a group.
23           If you have a population instead of a
24  sample, there's no cluster issue, by definition.
25       Q.  And so if the mean residual errors within

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1  certain particular groups in the transaction data at
2  issue in this case are correlated, that is, they are
3  statistically significantly different from zero,
4  your opinion is it has no impact on the calculation
5  of the standard errors in the case?
6       A.  That's not what I said.
7           MS. BERNAY:  Objection.  Misstates his
8  prior testimony.
9  BY MR. KIERNAN:
10       Q.  What was wrong with -- what do you
11  disagree with in the question I just asked?
12           MS. BERNAY:  Objection.  Vague.
13           THE WITNESS:  First of all, if you look
14  within a -- if you define the group as a particular
15  model of an iPod, and you look at the errors in
16  predicting that, and you find they're correlated, it
17  may be -- it's perfectly explained if you took into
18  account all the values of all the other independent
19  variables.
20           So that test in and of itself doesn't
21  prove anything.  All right.  The only way it proves
22  something -- again, let's go back to the reasons
23  cluster sampling can be a problem.  And as stated in
24  the report, there's three reasons why it can be a
25  problem.  One is a sample bias problem, and the

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1  other two are versions of omitted variable problems.
2           So the issue is, is there a sampling issue
3  here?  The answer is no.
4           Are there omitted variables?  I'm not
5  aware of any that would add statistical significance
6  to the regression equation without being so highly
7  multicollinear that they would destroy the
8  coefficient estimates.
9           So there can't -- there isn't any -- none
10  of the three reasons why you might have a problem
11  exist.  So I don't care what the test is, because
12  it's testing for something that, in principle, can't
13  exist as a problem in the regression.
14  BY MR. KIERNAN:
15       Q.  So if you run a test on a particular group
16  of transactions and the test shows that the mean
17  residual errors are statistically significantly
18  different from zero, your opinion is it has no
19  impact on the calculation of the standard errors?
20           MS. BERNAY:  Objection.  Vague and
21  ambiguous.  Misstates prior testimony as well.
22  BY MR. KIERNAN:
23       Q.  Let me put it differently.  It does not
24  overstate or understate the standard errors that
25  you're calculating?

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1           MS. BERNAY:  Same objection.
2           THE WITNESS:  It may or may not.  You
3  haven't -- there's not enough information in your
4  question to make a prediction about the effect on
5  the calculation of the standard errors.
6  BY MR. KIERNAN:
7       Q.  What additional information do you need?
8       A.  You have to understand what is the source
9  of what you're measuring.  All right.  You have
10  to --
11       Q.  The source of the observations?
12       A.  No.
13           THE REPORTER:  What's the question?
14           You guys are cutting each other off.
15           THE WITNESS:  Yeah, he does do this,
16  doesn't he?
17           The very first step is precisely what
18  residual errors are you correlating, what actually
19  is it.  All right.  And I don't know the answer to
20  that.
21           All you're telling me is that within a
22  model of iPods, the mean residual error isn't
23  zero.  That's all you're telling me.  You're not
24  telling me anything else about why it might be
25  different from zero.

1          In fact, purely as a statistical matter, I
2   would expect it not to be the case that they would
3   all be zero, all right, just purely from random
4   sample or random -- the random shocks in the
5   regression.
6          So we have to know why.  Before we can get
7   to the question "is that going to affect the
8   calculation of the standard errors of the regression
9   coefficients," we have to understand why the
10  residual errors don't sum to zero.
11  BY MR. KIERNAN:
12      Q.  And did you explore any of the why the
13  mean residual errors in your regression are
14  statistically significantly different from zero for
15  certain groups of transactions of iPods?
16          MS. BERNAY:  Objection.  Vague and
17  ambiguous.  Again, mischaracterizes the prior
18  testimony.
19          THE WITNESS:  First of all, you're
20  assuming in the way the question is answered that I
21  know which ones are statistically significantly
22  different from zero, and I don't.
23          Secondly, all I did is examine the reasons
24  given by Professors Murphy and Topel as to why these
25  things were different from zero, and they're wrong.

1          So I didn't go beyond that.
2          And they're small to begin with.
3   Regardless of whether they're statistically
4   significant, they're small anyway.
5          So there's certainly no proof that the
6   answer in the regression equation about what damages
7   are is in any way affected by anything in there that
8   they discuss with regard to cluster analysis.
9   BY MR. KIERNAN:
10      Q.  Dr. Noll, when you say "they're small to
11  begin with.  Regardless of whether they're
12  statistically significant, they're small anyway,"
13  what are you referring to as they are small?
14      A.  Well, there's a -- in the backup stuff to
15  the reports, the residual errors, the mean residual
16  errors by model are not big numbers.  That's what I
17  recall.  I don't remember the precise thing because
18  it was months ago.
19          But we did in fact examine what the basis
20  was for their statements about the mean residual
21  error, and there was no -- there was really nothing
22  very important there.
23      Q.  In your report, you discuss one technique
24  for -- well, strike that.
25          You set forth a description of

1   bootstrapping as a technique.  And describe what
2   "bootstrapping" is so I make sure I understand it.
3       A.  Sample -- you have a small number of
4   observations and -- this was actually invented by my
5   college roommate.
6           You have a small number of observations,
7   and the idea is if you just ran a single regression
8   on the small sample that you have, the end wouldn't
9   be large enough to be able to detect an effect, a
10  causal effect of one variable on another.
11          So what you do is you draw a sample
12  from -- a sample with replacement; that is to say,
13  you pick an observation, pull it out, count that as
14  an observation, and you put it back into the puddle
15  of all the observations and you draw another one.
16          And you do that several times, run a
17  regression.  And then you do it all again and run
18  another regression, and then you do it all again and
19  run another regression.  And then you use the
20  distribution of the coefficients from those
21  regressions as a way to estimate what the true
22  coefficient is.
23      Q.  Is that something you did in this case?
24      A.  No.  We don't have a small sample.  We
25  have a population.

1       Q.  What was the point of discussing that in
2   your report?
3       A.  The point of discussing it was the
4   mischaracterization of what independence means, that
5   the -- Professors Murphy and Topel mischaracterize
6   independence as being the same observation.  And in
7   bootstrapping, you use the same observation over and
8   over and over and over again, and it doesn't violate
9   the independence assumption.
10      Q.  What does the independence assumption
11  refer to, in your words?  You disagree with
12  Professor Murphy and Professor Topel.  Define for me
13  what you're referring to as the independence
14  assumption.
15      A.  It's that the random component of the
16  regression equation -- the distribution of that
17  random component is unaffected by the observed
18  values of any other component.
19          And the reason the independence assumption
20  is satisfied in bootstrapping is that you're
21  randomly drawing samples.  So before the fact, what
22  the next observation is going to be is independent
23  of what the previous observation was.
24      Q.  When you were referring to "random
25  component," were you referring to the residual?

**Roger Noll, Ph.D.**                    **The Apple iPod iTunes Anti-Trust Litigation**

1      A.  The residual is an estimate.  It's the
2  unexplained variance.  The independence assumption
3  refers to the underlying distribution of the error
4  term.  And then the residual error in the regression
5  equation is for the entire equation.  By definition,
6  a regression analysis has to have mean zero.
7           So the issue then about residual errors
8  being correlated is you draw some subset of the
9  observations and say is that sub- -- does that
10  subset have correlations.  And then if it does, that
11  means the correlations of the residual errors in
12  that group, if on average they're greater than zero,
13  that means all the others have to be on average less
14  than zero.
15           And then the issue is why does one
16  subsample have positive residual errors and another
17  have negative.  And there's some potential
18  explanations for that, one of which is the actual
19  way you created the groups, because you may not have
20  taken fully into account the effect, the actual
21  effect that's already explained in the regression of
22  some of the independent variables.
23      **Q.  And if I understand your answer, one way**
24  **to test your independence assumption is to look at**
25  **the distribution of the error terms in the**

1  regression?
2      A.  It can be, but it isn't necessarily.  You
3  have to -- you have to have an underlying both
4  economic theoretic and econometric theoretic reason
5  to believe that the groupings you have make sense.
6           In other words, I can always construct a
7  way to separate a sample into two groups so that one
8  has positive residual errors on average and the
9  other has negative, but that doesn't mean that
10  there's a problem with the regression analysis,
11  because I've constructed it to produce that, that
12  result.  And that's why I say you'd have to know
13  what the reason for it is.
14           Just to take a very simple example, I
15  could just take the ten observations where the model
16  underestimates the true value by the maximum amount,
17  all right, the worst possible observations in terms
18  of underpredicting the dependent variable.  Then I
19  could call that a group, and I say, ah-hah, those
20  are statistically significant positive residual
21  errors.
22           But that doesn't mean there's anything
23  wrong with the model.  It doesn't mean there's
24  anything funny going on with violation of
25  independence.  It just means that me, as the person

1  dealing with the data, have constructed subsamples
2  in a way to get groups that have residual errors
3  that are statistically significantly different from
4  zero.  That doesn't tell me anything about the
5  underlying quality of the regression, the standard
6  errors or anything else.  It just means that I've
7  cherry-picked.
8           So that's why the answer to questions like
9  you've been asking me always have to be "it
10  depends."  It depends on how the subsample was
11  collected whether any test of whether the residual
12  errors are positive or negative even makes sense to
13  begin with.
14      **Q.  When dealing with -- strike that.**
15           **Are there other cases in which you have**
16  **worked with an entire population of transactions in**
17  **estimating a regression?**
18      A.  Yes.
19      **Q.  And in those cases, have you done anything**
20  **to test the independence assumption that we've been**
21  **discussing?**
22           MS. BERNAY:  Objection.  Calls for
23  speculation, vague and ambiguous.
24           THE WITNESS:  I have -- the only -- first
25  of all, the only circumstances in which that even is

1  an interesting issue would be where you had very low
2  explanatory power in the regression.  All right.
3  Then it's possible that you could have economically
4  and econometrically meaningful subgroups that had
5  positive or negative residual errors.
6           And so if you have extremely high
7  R-squares, if your regression is doing a good job
8  explaining the data, then it would not be a
9  meaningful exercise to do that.  And in most cases,
10  I never do, because the R-square, like this one, is
11  very high.
12  BY MR. KIERNAN:
13      **Q.  So if the R-square is very high and you're**
14  **dealing with a --**
15      A.  Population.
16      **Q.  -- population subset, your opinion is**
17  **there's no reason to test the independence**
18  **assumption?**
19           MS. BERNAY:  Objection.  Mischaracterizes
20  the prior testimony.
21           THE WITNESS:  Right.  I have normally not
22  attempted to test, but there are -- the only
23  circumstances in which I would do that is if there
24  was -- there was some really big outlier prediction
25  errors and they were all the same thing.  And you

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1  could get still get a high squared with a very small
2  subset getting big prediction errors.
3          (Reporter inquires.)
4          THE WITNESS:  You can have a high
5  R-squared in a regression and still have a group of
6  predictions that were -- where the prediction error
7  is large.  And then you would -- you would still
8  want to address whether that group -- you had some
9  omitted variable for that group or something.
10         But again, that's not really likely to
11  happen if you already have group identifiers.  See,
12  again, the -- by definition, if you have group
13  identifiers, the residual error within that group is
14  going to be zero.  The mean residual error is going
15  to be zero, because that's what regression analysis
16  does.
17         So that's why, for example, the most
18  conventional solution to cluster problems is to use
19  group identifiers, indicator variables, to get the
20  mean of those residual errors for each group to
21  zero.
22  BY MR. KIERNAN:
23     Q.  In this case, did you perform any
24  statistical test to determine or to test your
25  independence assumption?

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1          MS. BERNAY:  Objection.  Asked and
2  answered.
3          THE WITNESS:  I have -- I have not
4  performed a test of the independence assumption as
5  you've put it in that way, no.  It would be
6  unnecessary, because there are no groups with
7  outlying residual errors in the R-squared spot.  And
8  by definition, the mean residual errors by group are
9  going to be zero.
10  BY MR. KIERNAN:
11     Q.  And if statistical tests show that mean
12  residual errors within groups are correlated, that
13  does not affect your analysis or any of your
14  opinions in any way?
15         MS. BERNAY:  Objection.  Calls for
16  speculation.
17         THE WITNESS:  It might or it might not,
18  depending on what the reason for finding that
19  correlation was, that statistically significant
20  correlation was.  It would purely depend on the way
21  the test was performed and the way the groups were
22  created and the way the residual errors were
23  calculated.  All right.  That's what it would depend
24  on.
25  ///

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1  BY MR. KIERNAN:
2     Q.  If you could turn to page 27.
3         Let me know when you get there, Dr. Noll.
4         MS. BERNAY:  27?
5         MR. KIERNAN:  Yeah, of Noll 10.
6  BY MR. KIERNAN:
7     Q.  In the second paragraph, you state that
8  "Whereas new iPod owners in late 2006 became more
9  locked in to iPods over time..."
10        Do you see that sentence?
11     A.  Yes.
12     Q.  When you're referring to "new iPod
13  owners in late 2006," who are you referring to?
14     A.  People who had just bought or were about
15  to buy an iPod.
16     Q.  Okay.  And are you referring to consumers
17  that purchase an iPod -- only those consumers who
18  purchase an iPod with 7.0 implemented?
19     A.  The issue of lock-in effect also depends
20  on how locked in you are, of course.  But the --
21  if -- and it also depends on whether you have bought
22  digital downloads from the iTunes Store or not.
23        So the degree of lock-in would be affected
24  by 7.0, but it's not the only factor affecting
25  lock-in.

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1          MR. KIERNAN:  Okay.  Move to strike as
2  nonresponsive.
3  BY MR. KIERNAN:
4     Q.  With respect to your first sentence, you
5  state:  "Whereas new iPod owners in late 2006 became
6  more locked in to iPods over time..."
7          My question is:  The "new iPod owners in
8  late 2006," does that refer to purchasers of iPods
9  that only included 7.0?
10         MS. BERNAY:  Objection.  Asked and
11  answered.
12         THE WITNESS:  My nonresponsive answer was
13  in fact responsive.  It depends on other things.
14  All right.  People who bought 7.0, obviously 7.0 --
15  iPods with 7.0 in them contributed to a lock-in
16  effect more than people whose iPods did not have
17  7.0.
18         But on the other hand, if people,
19  regardless of whether they bought 7.0, bought music
20  from the iTunes Store in a DRM-protected fashion,
21  they would be experiencing lock-in as well.
22  BY MR. KIERNAN:
23     Q.  Okay.
24     A.  So that, contrary to your assertion, it
25  was completely responsive.  You just didn't

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 1                    REPORTER CERTIFICATION

 2

 3           I, Darcy J. Brokaw, a Certified Shorthand

 4   Reporter, do hereby certify:

 5           That prior to being examined, the witness in

 6   the foregoing proceedings was by me duly sworn to

 7   testify to the truth, the whole truth, and nothing but

 8   the truth;

 9           That said proceedings were taken before me at

10   the time and place therein set forth and were taken down

11   by me in shorthand and thereafter transcribed into

12   typewriting under my direction and supervision;

13           I further certify that I am neither counsel

14   for, nor related to, any party to said proceedings, nor

15   in any way interested in the outcome thereof.

16           In witness whereof, I have hereunto subscribed

17   my name.

18

19   Dated:  December 19, 2013

20

21   _____

     Darcy J. Brokaw

22   CSR No. 12584, RPR, CRR

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