Econometric analysis undertaken in support of the consultation document on the OFT's provisional decision to make a market investigation reference to the Competition Commission of the supply of statutory audit services to large companies in the UK

Introduction

This document summarises some of the econometric results from Oxera's study into the market for audit services, *Competition and choice in the UK audit market*, April 2006.[1] It describes work the OFT has conducted to test the robustness of Oxera's results by applying similar modelling techniques to an updated dataset and by addressing some comments about the validity of the original results.

Summary of Oxera methodology and results

Oxera used company financial data from FAME to investigate sources of variation in audit fees amongst UK listed companies, focusing in particular on the effects that auditor market share and concentration in the provision of audit services have on audit fees. Its dataset covered the period 1995-2004 and included UK listed companies that traded on the Main Market of the London Stock Exchange in 2004 for which data on variables of interest was available. Companies did not have to have data for all ten years. Market shares were defined as the percentage of total audit fees in a particular year and industry accruing to that auditor. HHI was defined as the sum of the squared market shares for a particular year and industry. In its study, Oxera used thirteen broad industry categorisations based on UK SIC codes.

Controlling for a variety of other factors that could affect fees (such as company turnover), Oxera found a positive relationship between both auditor market share and concentration and audit fees. It also found a negative relationship between the total number of times a company had switched auditors to that date and the audit fees they were subsequently charged. It tried a large number of different ways of modelling this relationship and found very similar results in each case.

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[1] Commissioned by the DTI and the FRC.

Oxera's preferred model (Table 5.4, Model III) found that:

- A 100 percent increase in auditor market share was associated with a 5 percent increase in audit fees.
- A 100 percent increase in HHI[2] for provision of audit services was associated with a 16 percent increase in audit fees.
- Switching auditor was associated with an approximately 5.7 percent reduction in audit fees.[3]

Oxera found all of the above estimated effects to be statistically significant.

In isolating these effects, Oxera controlled for a number of additional factors that might be expected to drive audit fees. These included:

- Company turnover
- International turnover[4]
- Lagged audit fees
- Mergers[5]
- Industry controls

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[2] Herfindahl-Hirschmann Index (HHI) is a measure of concentration based on the sum of the square of percentage market shares within a market. HHI levels greater than 1800 are typically considered to represent highly concentrated markets.

[3] The exact magnitude of the estimated effect is $e^{-0.057}-1=-0.055$, or a decrease of 5.5 percent.

[4] Oxera defines international turnover as the ratio of a company's international turnover to total turnover, as of 2004. Thus, in Oxera's report, this variable is a constant for a given company. We were able to calculate that ratio for each year for a given company, if data were available. This allowed us to include that explanatory variable in the fixed effects models as well, whilst if it were a constant for a given company, we would not have been able to include it in the fixed effects models. Nevertheless, if we define international turnover as a constant for a given company, equal to the ratio of a company's international turnover to total turnover for 2010, we obtain very similar results. As mentioned above, in that case since the variable is a constant for a given company, we can only include it in the random effects model but not in the fixed effects model.

[5] Defined as an increase in turnover of more than 40 per cent compared to the previous year.

- Year controls
- Market type (for example, FTSE Small Cap)

Oxera's preferred model assumed random firm-specific effects. This is appropriate if all unobserved firm-specific factors that drive audit fees (e.g. complexity of business model) are unrelated to the explanatory variables included in the model. The OFT considers this assumption in a separate section below. Oxera also estimated a fixed effects model, which relaxes the random effects assumption, and found there was no significant difference in estimated effects for the variables of interest. As a result, it preferred the random effects model because it allowed for testing the effect of factors that are constant over time on audit fees. Fixed effects models do not allow for any such factors to be assessed because of the way the data is transformed for estimation.

Updated analysis

We were interested in updating Oxera's results and checking their robustness, particularly with respect to comments made by some stakeholders following publication by Oxera. We obtained an updated dataset from FAME covering the period 2001 to 2010, covering the FTSE 350.[6, 7] This updated dataset was used to replicate the main models reported by Oxera in Section 5 and Appendix 2 of its report. This analysis found some similar qualitative results, which implies that Oxera's results may be relatively robust and also that the impact of concentration in the audit market on audit fees has not changed much in the last six years.

Fixed-effects and random-effects models: We did not consider the assumptions necessary for the random-effects model to be likely to hold in this case. Specifically, we consider that there may be reasons why unobserved company-specific characteristics that drive audit fees might also be linked with the variables included in our models. For example, a

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[6] This includes data in the FAME database as of June 2011.

[7] In addition to FTSE 350, the econometric analysis in Table 5.4 of the Oxera report also included FTSE Small Cap companies, FTSE Fledgling companies, and the 100 largest (by turnover) private companies. The OFT econometric analysis used data on FTSE 350 companies only, and, in the random effects model, distinguished between FTSE 100 and FTSE 250 companies.

more complex company might require an auditor with specialised knowledge of the industry. This specialised knowledge might reasonably be expected to be linked to the market share. If this were the case, it would bias the results of our econometric analysis in an indeterminate direction.

In this case, since we were more concerned about estimating the impact of audit fee drives that do vary over time than those that do not, in particular market share and concentration, we preferred the fixed-effects approach over the random effects approach. We note that, similarly to the results from Oxera, the difference between the two approaches was small. Furthermore, the results of a Hausman specification test indicate that a fixed effects estimator is preferable to a random effects estimator.

Key results: Our analysis found that:

- A 100 percent increase in auditor market share was associated with a 10 percent increase in audit fees;
- A 100 percent increase in HHI for the provision of audit services was associated with a 37 percent increase in audit fees;
- Switching auditor was not found to be a significant explanatory variable for audit fees.

Discussion of the Oxera model

One critique of Oxera's work concerned the potential for inaccuracies in the FAME dataset it used. This highlighted a number of errors in the recorded amounts of fees by looking at outliers in the dataset and comparing the data against the company's historic accounts. As a result, it was suggested that using Companies House data instead of FAME data would provide a more accurate basis for analysis, and that the results based on the FAME dataset would be likely to be driven by those errors rather than genuine relationships.

We could see reasons why data errors might bias results towards finding a stronger relationship between market share and audit fee than actually exists. In particular, if audit fees are recorded as erroneously high, the market share for that auditor will appear higher than it actually was in

that year. This could drive a positive association between market share and audit fees which is not actually there.

Potential outliers in the regression sample

We did not consider that Companies House data would be likely to be helpful in removing any errors, as FAME data is taken directly from Companies House. Rather, OFT inspected the updated FAME dataset for outliers and considered the contribution these outliers made to results.

The OFT has considered, separately, the following three ways of identifying potential outliers in the analysis.

1. The OFT identified statistical outliers.[8] A new regression model was then estimated with all such observations removed.
2. Observations were removed where audit fees increased by more than £2m and by more than 50 per cent compared to the previous year. A new regression model was then estimated having removed all such observations.
3. Observations were removed where audit fees increased by more than 50 per cent compared to the previous year. A new regression model was then estimated having removed all such observations.

It is worth noting that in the treatment of outliers in the second and third methods, all observations for a company were removed where it had a single outlier. This was because a dramatic increase in audit fees in a particular period could mean that audit fees have been entered at too high a level in that period or at too low a level in the period before, and it is difficult to distinguish between the two when considering a large number of cases as each must be inspected visually and compared against actual accounts.

The results from this process were that:

- Removing outliers through the first method does not change the above results materially.[9]

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[8] An observation for which the level of the audit fee is at least two inter-quartile ranges below the lower quartile or above the upper quartile of audit fees.

- Removing outliers by the second and third methods rendered both auditor market share and HHI measures as insignificant. However, we note that these models were estimated using far fewer observations than for other models (approximately half the full sample). There could be many legitimate reasons for audit fees to increase by more than 50 per cent year-on-year, so these methods of removing outliers could be too restrictive. The FAME dataset is generally regarded as being a reputable source of company financial information and we consider it unlikely that the outliers identified using the second and third methods are indeed all errors. We note that many of the outliers identified in the second and third methods see a significant increase in audit fees because of a similar increase in turnover. Because we have controlled for turnover and for large increases in turnover, we do not consider the inclusion of these observations likely to bias results.

Conclusion

Overall, we consider that the Oxera model and our model of audit fees provide some support for the hypothesis that auditors with higher market shares can charge higher audit fees and that an increase in concentration in the provision of audit services is associated with an increase in the level of audit fees. These findings are robust across the time periods and models considered by ourselves and Oxera. However we cannot rule out that auditors with high market shares charge higher fees because they offer a higher quality product. The OFT also notes it is possible that results are driven by a large number of data errors in the FAME database, although we consider this to be unlikely.

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[9] The impact of auditor market share on audit fees falls to 9 per cent and the impact of HHI concentration falls to 35 per cent. Switching remains insignificant.

Details of the analysis undertaken

Fixed-effects model

```
Fixed-effects (within) regression               Number of obs      =      2055
Group variable: co_id                           Number of groups   =       298
R-sq:  within  = 0.2896                         Obs per group: min =         1
       between = 0.7913                                        avg =       6.9
       overall = 0.7269                                        max =         9

                                                F(15,1742)         =     47.34
corr(u_i, Xb)  = 0.5946                         Prob > F           =    0.0000
------------------------------------------------------------------------------
    ln_audit |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lag_audit |   .1040885   .0219386     4.74   0.000     .0610597    .1471173
_Iyear_~2003 |   .0248023   .0377896     0.66   0.512    -.0493155    .0989202
_Iyear_~2004 |   .1423142   .0373444     3.81   0.000     .0690696    .2155588
_Iyear_~2005 |   .2021477   .0372631     5.42   0.000     .1290627    .2752328
_Iyear_~2006 |   .2112276    .037692     5.60   0.000     .1373012     .285154
_Iyear_~2007 |   .2471035   .0383372     6.45   0.000     .1719116    .3222953
_Iyear_~2008 |   .2718466   .0389482     6.98   0.000     .1954564    .3482368
_Iyear_~2009 |    .251908   .0396009     6.36   0.000     .1742377    .3295783
_Iyear_~2010 |   .2344309   .0407238     5.76   0.000     .1545583    .3143034
 ln_turnover |   .2761607   .0277002     9.97   0.000     .2218316    .3304897
ln_aud_share |   .1038383   .0183188     5.67   0.000      .067909    .1397675
      ln_HHI |   .3734617    .101449     3.68   0.000     .1744871    .5724364
    switches |  -.0425765   .0449831    -0.95   0.344    -.1308032    .0456501
int_turnover |   .1242782   .0384699     3.23   0.001     .0488262    .1997302
     mergers |   .0249619   .0261439     0.95   0.340    -.0263148    .0762386
       _cons |   2.368155    .391312     6.05   0.000     1.600664    3.135646
-------------+----------------------------------------------------------------
     sigma_u |  .89376081
     sigma_e |  .35131136
         rho |  .86617229   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(297, 1742) =     4.89           Prob > F = 0.0000
```

Random-effects model

```
Random-effects GLS regression                   Number of obs      =      2055
Group variable: co_id                           Number of groups   =       298
R-sq:  within  = 0.1728                         Obs per group: min =         1
       between = 0.9762                                        avg =       6.9
       overall = 0.8969                                        max =         9

Random effects u_i ~ Gaussian                   Wald chi2(27)      =  17387.79
corr(u_i, X)       = 0 (assumed)                Prob > chi2        =    0.0000

------------------------------------------------------------------------------
    ln_audit |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lag_audit |   .7289814   .0139745    52.17   0.000      .701592    .7563709
_Iyear_~2002 |   .0665207   .0449759     1.48   0.139    -.0216305    .1546719
_Iyear_~2003 |   .0477474   .0436365     1.09   0.274    -.0377786    .1332735
_Iyear_~2004 |   .1272921   .0418435     3.04   0.002     .0452803    .2093038
_Iyear_~2005 |   .1448927    .040874     3.54   0.000      .064781    .2250043
_Iyear_~2006 |   .0932128   .0398485     2.34   0.019     .0151111    .1713145
_Iyear_~2007 |   .0864442   .0391303     2.21   0.027     .0097501    .1631382
_Iyear_~2008 |   .1082696   .0388828     2.78   0.005     .0320608    .1844785
_Iyear_~2009 |   .0131716   .0381698     0.35   0.730    -.0616398     .087983
 ln_turnover |   .1554053   .0112606    13.80   0.000     .1333348    .1774757
ln_aud_share |   .0332026   .0098487     3.37   0.001     .0138995    .0525056
      ln_HHI |   .2724733    .120792     2.26   0.024     .0357253    .5092212
    switches |   .0322088   .0262383     1.23   0.220    -.0192173    .0836349
int_turnover |   .1666285   .0313442     5.32   0.000     .1051949     .228062
_Iindustry_2 |  -.1788617   .1729395    -1.03   0.301    -.5178169    .1600935
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_Iindustry_3 |  -.1893673   .0583846    -3.24   0.001     -.303799   -.0749357
_Iindustry_4 |    -.02341   .0585246    -0.40   0.689    -.1381161    .0912961
_Iindustry_5 |   .0592898   .0374121     1.58   0.113    -.0140366    .1326161
_Iindustry_6 |  -.0474075   .0563422    -0.84   0.400    -.1578362    .0630213
_Iindustry_7 |  -.2667788   .0630094    -4.23   0.000    -.3902749   -.1432827
_Iindustry_8 |  -.2895716   .2100907    -1.38   0.168    -.7013417    .1221985
_Iindustry_9 |  -.2502376   .0674883    -3.71   0.000    -.3825122   -.1179629
_Iindustr~10 |  -.2498571   .0987784    -2.53   0.011    -.4434592    -.056255
_Iindustr~11 |  -.0054573   .0472258    -0.12   0.908    -.0980182    .0871036
_Iindustr~12 |   .1173932   .0547223     2.15   0.032     .0101395    .2246469
_Iftse_typ~2 |  -.0644697   .0279136    -2.31   0.021    -.1191793     -.00976
     mergers |  -.0068057   .0135029    -0.50   0.614     -.033271    .0196595
       _cons |  -.0219682    .194525    -0.11   0.910    -.4032301    .3592938
-------------+----------------------------------------------------------------
     sigma_u |  .01667401
     sigma_e |  .35131136
         rho |   .0022476   (fraction of variance due to u_i)
------------------------------------------------------------------------------
```

Comparison of random and fixed effects models

```
Random and fixed effects
----------------------------------------------------
            Variable      random         fixed
----------------------------------------------------
           lag_audit      0.7290***      0.1041***
         ln_turnover      0.1554***      0.2762***
        ln_aud_share      0.0332***      0.1038***
              ln_HHI      0.2725**       0.3735***
            switches      0.0322        -0.0426
        int_turnover      0.1666***      0.1243***
             mergers     -0.0068         0.0250
----------------------------------------------------
                   N        2055           2055
----------------------------------------------------
                 legend: * p<.1; ** p<.05; *** p<.01
```

Hausman test results – supportive of a fixed-effects specification

```
Hausman test using covariance matrices based on the estimated disturbance variance
from efficient estimator

                ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+----------------------------------------------------------------
   lag_audit |    .1040885     .7289814       -.6248929         .023688
_Iyear_~2003 |    .0248023     .0477474       -.0229451        .0184436
_Iyear_~2004 |    .1423142     .1272921        .0150221        .0209968
_Iyear_~2005 |    .2021477     .1448927        .0572551        .0226167
_Iyear_~2006 |    .2112276     .0932128        .1180148        .0253935
_Iyear_~2007 |    .2471035     .0864442        .1606593        .0279042
_Iyear_~2008 |    .2718466     .1082696        .1635769        .0295325
_Iyear_~2009 |     .251908     .0131716        .2387364        .0317439
 ln_turnover |    .2761607     .1554053        .1207554        .0328493
ln_aud_share |    .1038383     .0332026        .0706357         .020746
      ln_HHI |    .3734617     .2724733        .1009885        .0397981
    switches |   -.0425765     .0322088       -.0747853        .0499162
int_turnover |    .1242782     .1666285       -.0423503        .0366521
     mergers |    .0249619    -.0068057        .0317676        .0298639
------------------------------------------------------------------------------
                          b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                chi2(14) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                         =      908.16
```

```
                Prob>chi2 =      0.0000

Hausman test using covariance matrix based on the estimated disturbance variance from
consistent estimator

                 ---- Coefficients ----
             |      (b)          (B)            (b-B)     sqrt(diag(V_b-V_B))
             |     fixed        random       Difference          S.E.
-------------+------------------------------------------------------------
   lag_audit |    .1040885     .7289814       -.6248929        .0188956
_Iyear_~2003 |    .0248023     .0477474       -.0229451        .0147122
_Iyear_~2004 |    .1423142     .1272921        .0150221        .0167488
_Iyear_~2005 |    .2021477     .1448927        .0572551         .018041
_Iyear_~2006 |    .2112276     .0932128        .1180148         .020256
_Iyear_~2007 |    .2471035     .0864442        .1606593        .0222587
_Iyear_~2008 |    .2718466     .1082696        .1635769        .0235576
_Iyear_~2009 |     .251908     .0131716        .2387364        .0253216
 ln_turnover |    .2761607     .1554053        .1207554        .0262034
ln_aud_share |    .1038383     .0332026        .0706357        .0165487
      ln_HHI |    .3734617     .2724733        .1009885        .0317463
    switches |   -.0425765     .0322088       -.0747853        .0398174
int_turnover |    .1242782     .1666285       -.0423503        .0292368
     mergers |    .0249619    -.0068057        .0317676         .023822
------------------------------------------------------------------------------
                           b = consistent under Ho and Ha; obtained from xtreg
            B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic

                 chi2(14) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =     1427.26
                Prob>chi2 =      0.0000
```

Fixed-effects model – outliers removed (first method)

```
Fixed-effects (within) regression               Number of obs      =      1837
Group variable: co_id                           Number of groups   =       282
R-sq:  within  = 0.2759                         Obs per group: min =         1
       between = 0.7601                                        avg =       6.5
       overall = 0.6513                                        max =         9

                                                F(15,1540)         =     39.13
corr(u_i, Xb)  = 0.4714                         Prob > F           =    0.0000
------------------------------------------------------------------------------
    ln_audit |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lag_audit |   .1315732   .0263248     5.00   0.000      .079937    .1832095
_Iyear_~2003 |   .0270089   .0400962     0.67   0.501      -.05164    .1056578
_Iyear_~2004 |   .1284489   .0401405     3.20   0.001     .0497131    .2071847
_Iyear_~2005 |    .204889   .0402149     5.09   0.000     .1260072    .2837708
_Iyear_~2006 |   .2049711   .0407988     5.02   0.000     .1249441    .2849981
_Iyear_~2007 |   .2380065   .0415208     5.73   0.000     .1565633    .3194497
_Iyear_~2008 |   .2595238   .0422939     6.14   0.000     .1765641    .3424834
_Iyear_~2009 |   .2376561   .0430391     5.52   0.000     .1532346    .3220776
_Iyear_~2010 |   .2086529   .0442544     4.71   0.000     .1218476    .2954582
 ln_turnover |   .2611545   .0294985     8.85   0.000      .203293     .319016
ln_aud_share |   .0888326   .0191098     4.65   0.000     .0513487    .1263165
      ln_HHI |   .3469061   .1092784     3.17   0.002     .1325558    .5612564
    switches |  -.0220049   .0471019    -0.47   0.640    -.1143955    .0703857
int_turnover |    .143338   .0431596     3.32   0.001     .0586801    .2279959
     mergers |   .0178505   .0282799     0.63   0.528    -.0376207    .0733217
       _cons |   2.195215   .4039034     5.43   0.000     1.402956    2.987474
-------------+----------------------------------------------------------------
     sigma_u |  .78803375
     sigma_e |  .35972857
         rho |  .82755287   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(281, 1540) =     3.68           Prob > F = 0.0000
```

Fixed-effects model – outliers removed (second method)

```
Fixed-effects (within) regression               Number of obs      =      1064
Group variable: co_id                           Number of groups   =       166

R-sq:  within  = 0.2475                         Obs per group: min =         1
       between = 0.9662                                        avg =       6.4
       overall = 0.9075                                        max =         9

                                                F(15,883)          =     19.36
corr(u_i, Xb)  = 0.7962                         Prob > F           =    0.0000
------------------------------------------------------------------------------
    ln_audit |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lag_audit |   .4800033    .051459     9.33   0.000      .379007    .5809995
_Iyear_~2002 |  -.0515396   .0447722    -1.15   0.250     -.139412    .0363327
_Iyear_~2004 |   .0345329   .0434993     0.79   0.427    -.0508411     .119907
_Iyear_~2005 |   .0849546   .0431331     1.97   0.049     .0002993    .1696099
_Iyear_~2006 |   .0768747   .0440649     1.74   0.081    -.0096096    .1633589
_Iyear_~2007 |   .0666804    .045029     1.48   0.139    -.0216959    .1550568
_Iyear_~2008 |   .0976187   .0449871     2.17   0.030     .0093246    .1859127
_Iyear_~2009 |   .0742261   .0455577     1.63   0.104     -.015188    .1636402
_Iyear_~2010 |  -.0379877   .0475355    -0.80   0.424    -.1312835    .0553081
 ln_turnover |   .1738785   .0329115     5.28   0.000     .1092845    .2384725
ln_aud_share |   .0340576   .0262979     1.30   0.196    -.0175561    .0856714
      ln_HHI |   -.122155   .1316454    -0.93   0.354    -.3805293    .1362194
    switches |  -.0757188   .0655562    -1.16   0.248     -.204383    .0529454
int_turnover |   .0535176   .0449232     1.19   0.234    -.0346512    .1416863
     mergers |  -.0759819   .0452271    -1.68   0.093     -.164747    .0127832
       _cons |   .8853421   .4946657     1.79   0.074    -.0855157      1.8562
-------------+----------------------------------------------------------------
     sigma_u |  .51264892
     sigma_e |  .30369616
         rho |  .74022283   (fraction of variance due to u_i)
------------------------------------------------------------------------------
F test that all u_i=0:     F(165, 883) =     1.27            Prob > F = 0.0197
```

Fixed-effects model – outliers removed (third method)

```
Fixed-effects (within) regression               Number of obs      =      1108
Group variable: co_id                           Number of groups   =       171
R-sq:  within  = 0.2520                         Obs per group: min =         1
       between = 0.9666                                        avg =       6.5
       overall = 0.9167                                        max =         9
                                                F(15,922)          =     20.71
corr(u_i, Xb)  = 0.8040                         Prob > F           =    0.0000

------------------------------------------------------------------------------
    ln_audit |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   lag_audit |   .4729028   .0491448     9.62   0.000      .376454    .5693515
_Iyear_~2002 |  -.0501235   .0433071    -1.16   0.247    -.1351154    .0348684
_Iyear_~2004 |   .0326139   .0419692     0.78   0.437    -.0497524    .1149801
_Iyear_~2005 |   .0872166   .0416481     2.09   0.037     .0054805    .1689527
_Iyear_~2006 |   .0648861   .0425743     1.52   0.128    -.0186677      .14844
_Iyear_~2007 |   .0605309   .0432631     1.40   0.162    -.0243747    .1454364
_Iyear_~2008 |   .0950994   .0433251     2.20   0.028     .0100721    .1801266
_Iyear_~2009 |    .068968   .0439107     1.57   0.117    -.0172086    .1551445
_Iyear_~2010 |  -.0333003    .045899    -0.73   0.468    -.1233789    .0567784
 ln_turnover |   .1825827    .032086     5.69   0.000     .1196126    .2455528
ln_aud_share |   .0414447   .0258257     1.60   0.109    -.0092392    .0921286
      ln_HHI |  -.1348318   .1283186    -1.05   0.294    -.3866622    .1169986
    switches |  -.0746109   .0646038    -1.15   0.248    -.2013985    .0521766
int_turnover |   .0523525   .0425917     1.23   0.219    -.0312354    .1359404
     mergers |   -.063878    .043061    -1.48   0.138    -.1483869    .0206309
       _cons |   .8393214   .4832675     1.74   0.083    -.1091104    1.787753
-------------+----------------------------------------------------------------
     sigma_u |  .52558831
     sigma_e |  .30035086
         rho |  .75382801   (fraction of variance due to u_i)
```

```
------------------------------------------------------------------------------
F test that all u_i=0:     F(170, 922) =     1.31            Prob > F = 0.0082
```