Annex 2 – ANOVA test results

***Base amount – ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA - Single Factor: all commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 19.74 | 0.184485981308411 | 0.000724969141244929 |  |  |
| Almunia | 250 | 41.06 | 0.16424 | 0.000197211244979919 |  |  |
| Vestager | 135 | 21.91 | 0.162296296296296 | 3.12548369264786E-05 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0370015960506169 | 2 | 0.0185007980253085 | 69.516344450053 | 2.68754733991773E-27 | 4.64881307040146 |
| Within Groups | 0.130140477120111 | 489 | 0.000266135945030901 |  |  |  |
| Total | 0.167142073170731 | 491 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 250 | 41.06 | 0.16424 | 0.000197211244979919 |  |  |
| Vestager | 135 | 21.91 | 0.162296296296296 | 3.12548369264786E-05 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.000331186916787018 | 1 | 0.000331186916787018 | 2.380102611226 | 0.123715281458765 | 6.70150586005517 |
| Within Groups | 0.053293748148148 | 383 | 0.000139148167488637 |  |  |  |
| Total | 0.0536249350649352 | 384 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 19.74 | 0.184485981308411 | 0.000724969141244929 |  |  |
| Almunia | 250 | 41.06 | 0.16424 | 0.000197211244979919 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0307137774706145 | 1 | 0.0307137774706145 | 86.5676013382437 | 1.42566231310633E-18 | 6.70680044685668 |
| Within Groups | 0.125952328971962 | 355 | 0.000354795292878767 |  |  |  |
| Total | 0.156666106442577 | 356 |  |  |  |  |

***Additional amount – ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA - Single Factor: all commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 19.65 | 0.183644859813084 | 0.000706400987480163 |  |  |
| Almunia | 250 | 32.59 | 0.13036 | 0.00405649638554217 |  |  |
| Vestager | 135 | 21.91 | 0.162296296296296 | 3.12548369264786E-05 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.237716763439115 | 2 | 0.118858381719558 | 53.3650911357514 | 1.08739643082489E-21 | 4.64881307040146 |
| Within Groups | 1.08913425282105 | 489 | 0.00222726841067699 |  |  |  |
| Total | 1.32685101626016 | 491 |  |  |  |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 250 | 32.59 | 0.13036 | 0.00405649638554217 |  |  |
| Vestager | 135 | 21.91 | 0.162296296296296 | 3.12548369264786E-05 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0894091869167868 | 1 | 0.0894091869167868 | 33.762410172831 | 1.31136117341807E-08 | 6.70150586005517 |
| Within Groups | 1.01425574814815 | 383 | 0.0026481873319795 |  |  |  |
| Total | 1.10366493506494 | 384 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 19.65 | 0.183644859813084 | 0.000706400987480163 |  |  |
| Almunia | 250 | 32.59 | 0.13036 | 0.00405649638554217 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.21274689252598 | 1 | 0.21274689252598 | 69.6118881126295 | 1.62219428990104E-15 | 6.70680044685668 |
| Within Groups | 1.0849461046729 | 355 | 0.00305618621034619 |  |  |  |
| Total | 1.29769299719888 | 356 |  |  |  |  |

***Aggravating circumstances amount - ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA - Single Factor: all Commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 9.9 | 0.0925233644859813 | 0.0495662140715922 |  |  |
| Almunia | 250 | 1.6 | 0.0064 | 0.00341269076305219 |  |  |
| Vestager | 135 | 4.5 | 0.0333333333333333 | 0.0156716417910448 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.555896105159182 | 2 | 0.277948052579591 | 16.5675602452286 | 1.09168031742805E-07 | 4.64881307040146 |
| Within Groups | 8.20377869158877 | 489 | 0.0167766435410813 |  |  |  |
| Total | 8.75967479674797 | 491 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 250 | 1.6 | 0.0064 | 0.00341269076305219 |  |  |
| Vestager | 135 | 4.5 | 0.0333333333333333 | 0.0156716417910448 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0635906493506494 | 1 | 0.0635906493506494 | 8.25667806916452 | 0.00428645321768439 | 6.70150586005517 |
| Within Groups | 2.94976 | 383 | 0.0077017232375979 |  |  |  |
| Total | 3.01335064935062 | 384 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 9.9 | 0.0925233644859813 | 0.0495662140715922 |  |  |
| Almunia | 250 | 1.6 | 0.0064 | 0.00341269076305219 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.555773129139506 | 1 | 0.555773129139506 | 32.3241504670558 | 2.72660654674984E-08 | 6.70680044685668 |
| Within Groups | 6.10377869158877 | 355 | 0.0171937427932078 |  |  |  |
| Total | 6.65955182072831 | 356 |  |  |  |  |

***Mitigating amount - ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA – Single Factor: all commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 2.17 | 0.0202803738317757 | 0.0103857697055193 |  |  |
| Almunia | 250 | 3.35 | 0.0134 | 0.00187875502008033 |  |  |
| Vestager | 135 | 4.9 | 0.0362962962962963 | 0.00490409065782201 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0460665232294068 | 2 | 0.0230332616147034 | 5.06020902610822 | 0.00668053604104615 | 4.64881307040146 |
| Within Groups | 2.22584973693319 | 489 | 0.00455183995282862 |  |  |  |
| Total | 2.27191626016261 | 491 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 250 | 3.35 | 0.0134 | 0.00187875502008033 |  |  |
| Vestager | 135 | 4.9 | 0.0362962962962963 | 0.00490409065782201 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0459561375661376 | 1 | 0.0459561375661376 | 15.6460937829597 | 9.09903102482536E-05 | 6.70150586005517 |
| Within Groups | 1.12495814814815 | 383 | 0.0029372275408568 |  |  |  |
| Total | 1.17091428571429 | 384 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 2.17 | 0.0202803738317757 | 0.0103857697055193 |  |  |
| Almunia | 250 | 3.35 | 0.0134 | 0.00187875502008033 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0035471507107516 | 1 | 0.0035471507107516 | 0.802726606079422 | 0.370886525642062 | 6.70680044685668 |
| Within Groups | 1.56870158878504 | 355 | 0.00441887771488745 |  |  |  |
| Total | 1.5722487394958 | 356 |  |  |  |  |

***Deterrence amount - ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA - Single Factor: all commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 6.5 | 0.0607476635514019 | 0.0363692470463762 |  |  |
| Almunia | 250 | 3.9 | 0.0156 | 0.0027677108433735 |  |  |
| Vestager | 135 | 2.9 | 0.0214814814814815 | 0.00274405749032614 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.158463589055205 | 2 | 0.0792317945276026 | 7.88768665228207 | 0.000425124631413202 | 4.64881307040146 |
| Within Groups | 4.91200389061959 | 489 | 0.0100449977313284 |  |  |  |
| Total | 5.07046747967478 | 491 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 250 | 3.9 | 0.0156 | 0.0027677108433735 |  |  |
| Vestager | 135 | 2.9 | 0.0214814814814815 | 0.00274405749032614 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.0030324001924002 | 1 | 0.0030324001924002 | 1.09892057946469 | 0.295164173943428 | 6.70150586005517 |
| Within Groups | 1.05686370370371 | 383 | 0.00275943525771203 |  |  |  |
| Total | 1.0598961038961 | 384 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 107 | 6.5 | 0.0607476635514019 | 0.0363692470463762 |  |  |
| Almunia | 250 | 3.9 | 0.0156 | 0.0027677108433735 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 0.152730625409042 | 1 | 0.152730625409042 | 11.9312919019567 | 0.000618751028620311 | 6.70680044685668 |
| Within Groups | 4.54430018691588 | 355 | 0.0128008455969462 |  |  |  |
| Total | 4.69703081232492 | 356 |  |  |  |  |

***Total amount percentage wise (without those with turnover limit applied) – ANOVA***

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **ANOVA - Single Factor: all commissioners** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 105 | 154.923475 | 1.47546166666667 | 1.7593799066234 |  |  |
| Almunia | 234 | 163.547836666667 | 0.698922378917379 | 0.424111200170354 |  |  |
| Vestager | 124 | 68.82719125 | 0.555057993951613 | 0.298989791285483 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 57.1196107719678 | 2 | 28.5598053859839 | 41.2391152427075 | 3.36022915810624E-17 | 4.65158289611192 |
| Within Groups | 318.56916425664 | 460 | 0.692541661427479 |  |  |  |
| Total | 375.688775028608 | 462 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Almunia and Vestager** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Almunia | 234 | 163.547836666667 | 0.698922378917379 | 0.424111200170354 |  |  |
| Vestager | 124 | 68.82719125 | 0.555057993951613 | 0.298989791285483 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 1.67749449152498 | 1 | 1.67749449152498 | 4.4042477026593 | 0.0365536105822593 | 6.70659690205727 |
| Within Groups | 135.593653967807 | 356 | 0.380881050471367 |  |  |  |
| Total | 137.271148459332 | 357 |  |  |  |  |
|  |  |  |  |  |  |  |
| **ANOVA - Single Factor: Kroes and Almunia** | | | | | | |
| Alpha | 0.01 |  |  |  |  |  |
|  |  |  |  |  |  |  |
| Groups | Count | Sum | Mean | Variance |  |  |
| Kroes | 105 | 154.923475 | 1.47546166666667 | 1.7593799066234 |  |  |
| Almunia | 234 | 163.547836666667 | 0.698922378917379 | 0.424111200170354 |  |  |
|  |  |  |  |  |  |  |
| Source of Variation | SS | df | MS | F | P-value | F critical |
| Between Groups | 43.7051207413701 | 1 | 43.7051207413701 | 52.2674578191978 | 3.27146953635034E-12 | 6.71067250938549 |
| Within Groups | 281.793419928526 | 337 | 0.836182254980789 |  |  |  |
| Total | 325.498540669896 | 338 |  |  |  |  |