**Lampiran 1**

**Perhitungan Rasio**

**A. Rasio-rasio dalam Model Altman Z-Score**

1. **Rasio Working Capital To Total Assets (X1)**

   **Rumus WC/TA = \( \frac{\text{Aktiva lancar} - \text{Hutang Lancar}}{\text{Total Aktiva}} \)**

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Aktiva Lancar</th>
<th>Hutang Lancar</th>
<th>Total Aktiva</th>
<th>WC/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>769.050.497.930</td>
<td>2.874.428.104.739</td>
<td>9.052.428.014.700</td>
<td>-0,233</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>466.135.508.578</td>
<td>5.209.889.004.020</td>
<td>9.128.135.053.900</td>
<td>-0,520</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>149.520.345.786</td>
<td>7.945.291.430.919</td>
<td>7.898.560.916.085</td>
<td>-0,764</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2.014.295.403.669</td>
<td>5.539.559.431.186</td>
<td>15.866.493.429.557</td>
<td>-0,222</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2.023.170.122.409</td>
<td>6.522.092.930.300</td>
<td>17.578.684.934.364</td>
<td>-0,253</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>8.308.810.000.000</td>
<td>11.015.751.000.000</td>
<td>55.225.061.000.000</td>
<td>-0,049</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>7.169.017.000.000</td>
<td>13.494.437.000.000</td>
<td>54.520.891.000.000</td>
<td>-0,116</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>8.591.684.000.000</td>
<td>21.147.849.000.000</td>
<td>53.254.841.000.000</td>
<td>-0,236</td>
</tr>
</tbody>
</table>

   Sumber: Data diolah, 2016

2. **Rasio Retained Earnings to Total Assets (X2)**

   **Rumus RE/TA = \( \frac{\text{Laba ditahan}}{\text{Total Aktiva}} \)**

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Laba Ditahan</th>
<th>Total Aktiva</th>
<th>RE/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
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<td>-4.523.062.257.209</td>
<td>9.052.428.014.700</td>
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<tr>
<td></td>
<td>2013</td>
<td>-7.168.627.872.614</td>
<td>9.128.135.053.900</td>
<td>-0,785</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>-10.039.928.758.791</td>
<td>7.588.560.916.085</td>
<td>-1,323</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-10.498.967.710.498</td>
<td>15.866.493.429.557</td>
<td>-0,662</td>
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<tr>
<td></td>
<td>2014</td>
<td>-11.877.792.548.301</td>
<td>17.758.684.934.364</td>
<td>-0,669</td>
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<tr>
<td>ISAT</td>
<td>2012</td>
<td>15.981.167.000.000</td>
<td>55.225.061.000.000</td>
<td>0,289</td>
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<td></td>
<td>2013</td>
<td>13.011.589.000.000</td>
<td>54.520.891.000.000</td>
<td>0,239</td>
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<td>2014</td>
<td>11.024.419.000.000</td>
<td>53.254.841.000.000</td>
<td>0,207</td>
</tr>
</tbody>
</table>

   Sumber: Data diolah, 2016

3. **Rasio Earning Before Interest Taxes to Total Assets (X3)**

   **Rumus EBIT/TA = \( \frac{\text{EBIT}}{\text{Total Aktiva}} \)**

   Sumber: Data diolah, 2016
147

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>EBIT</th>
<th>Total Aktiva</th>
<th>EBIT/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>-3.533.547.122.456</td>
<td>9.052.428.014.700</td>
<td>-0,390</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-2.984.620.405.032</td>
<td>9.128.135.053.900</td>
<td>-0,327</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>-1.811.605.549.836</td>
<td>14.339.806.990.815</td>
<td>-0,126</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-2.708.059.002.617</td>
<td>15.866.493.429.557</td>
<td>-0,171</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>461.618.000.000</td>
<td>55.225.061.000.000</td>
<td>0,008</td>
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<td></td>
<td>2013</td>
<td>-3.333.837.000.000</td>
<td>54.520.891.000.000</td>
<td>-0,061</td>
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<td></td>
<td>2014</td>
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<td>53.254.841.000.000</td>
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Sumber: Data diolah, 2016

4. Rasio Market Value Equity to Book Value Total Debt (X4)

Rumus MVE/BVTD = Nilai pasar saham biasa dan preferen / Total Hutang

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Modal Saham</th>
<th>Total Hutang</th>
<th>MVE/BVTD</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>1.529.229.532.750</td>
<td>7.414.442.541.805</td>
<td>0,206</td>
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<tr>
<td></td>
<td>2013</td>
<td>1.529.229.532.750</td>
<td>10.135.605.627.318</td>
<td>0,151</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>1.529.229.532.750</td>
<td>11.467.346.262.180</td>
<td>0,133</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>960.976.984.914</td>
<td>12.816.548.480.145</td>
<td>0,075</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>1.619.424.178.281</td>
<td>13.796.743.041.760</td>
<td>0,117</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>164.048.871.062.100</td>
<td>35.829.677.000.000</td>
<td>4,579</td>
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<tr>
<td></td>
<td>2013</td>
<td>105.550.824.016.700</td>
<td>38.003.293.000.000</td>
<td>2,777</td>
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<tr>
<td></td>
<td>2014</td>
<td>103.007.430.666.900</td>
<td>39.058.877.000.000</td>
<td>2,637</td>
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Sumber: Data diolah, 2016

Berikut hasil perhitungan Modal Saham:

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Close Price per tahun</th>
<th>Saham beredar</th>
<th>Modal saham= Close price x saham beredar</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>50</td>
<td>30.584.590.655</td>
<td>1.529.229.532.750</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>50</td>
<td>30.584.590.655</td>
<td>1.529.229.532.750</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>50</td>
<td>30.584.590.655</td>
<td>1.529.229.532.750</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>84</td>
<td>17.795.870.091</td>
<td>1.494.853.087.644</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>54</td>
<td>17.795.870.091</td>
<td>960.976.984.914</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>91</td>
<td>17.795.870.091</td>
<td>1.619.424.178.281</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>6.450</td>
<td>25.433.933.498</td>
<td>164.048.871.062.100</td>
</tr>
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</table>
5. Rasio Sales to Total Assets (X5)

\[
\text{Rumus S/TA} = \frac{\text{Penjualan}}{\text{Total Aktiva}}
\]

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Penjualan</th>
<th>Total Aktiva</th>
<th>S/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>2,360,974,831,031</td>
<td>9,052,428,014,700</td>
<td>0,261</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2,072,434,729,924</td>
<td>9,128,135,053,900</td>
<td>0,227</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>1,179,181,751,298</td>
<td>7,588,560,916,085</td>
<td>0,155</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>1,649,165,727,254</td>
<td>14,339,806,990,815</td>
<td>0,115</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2,428,857,501,221</td>
<td>15,866,493,429,557</td>
<td>0,153</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2,954,410,048,419</td>
<td>17,758,684,934,364</td>
<td>0,166</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>22,418,812,000,000</td>
<td>55,225,061,000,000</td>
<td>0,406</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>23,855,272,000,000</td>
<td>54,520,891,000,000</td>
<td>0,438</td>
</tr>
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<td>2014</td>
<td>24,085,101,000,000</td>
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<td>0,452</td>
</tr>
</tbody>
</table>

Sumber: Data diolah, 2016

B. Rasio-rasio dalam Model Springate

1. Rasio Working Capital To Total Assets (X1)

\[
\text{Rumus WC/TA} = \frac{\text{Aktiva lancar} - \text{Hutang lancar}}{\text{Total Aktiva}}
\]

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Aktiva Lancar</th>
<th>Hutang Lancar</th>
<th>Total Aktiva</th>
<th>WC/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>769,050,497,930</td>
<td>2,874,428,104,739</td>
<td>9,052,428,014,700</td>
<td>-0,233</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>466,135,508,578</td>
<td>5,209,889,004,020</td>
<td>9,128,135,053,900</td>
<td>-0,520</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>149,520,345,786</td>
<td>5,945,291,430,919</td>
<td>7,588,560,916,085</td>
<td>-0,764</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>852,986,796,523</td>
<td>3,030,849,454,832</td>
<td>14,339,806,990,815</td>
<td>-0,152</td>
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<tr>
<td></td>
<td>2013</td>
<td>2,014,295,403,669</td>
<td>5,539,559,431,186</td>
<td>15,866,493,429,557</td>
<td>-0,222</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2,023,170,122,409</td>
<td>6,522,092,930,300</td>
<td>17,758,684,934,364</td>
<td>-0,253</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>8,308,810,000,000</td>
<td>11,015,751,000,000</td>
<td>55,225,061,000,000</td>
<td>-0,049</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>7,169,017,000,000</td>
<td>13,494,437,000,000</td>
<td>54,520,891,000,000</td>
<td>-0,116</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>8,591,684,000,000</td>
<td>21,147,849,000,000</td>
<td>53,254,841,000,000</td>
<td>-0,236</td>
</tr>
</tbody>
</table>

Sumber: Data diolah, 2016

2. Rasio Earning Before Interest Taxes to Total Assets (X2)

\[
\text{Rumus EBIT/TA} = \frac{\text{EBIT}}{\text{Total Aktiva}}
\]
<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>EBIT</th>
<th>Total Aktiva</th>
<th>EBIT/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>-3.533.547.122.456</td>
<td>9.052.428.014.700</td>
<td>-0,390</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-2.984.620.405.032</td>
<td>9.128.135.053.900</td>
<td>-0,327</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>-1.811.605.549.836</td>
<td>14.339.806.990.815</td>
<td>-0,126</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-2.708.059.002.617</td>
<td>15.866.493.429.557</td>
<td>-0,171</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>461.618.000.000</td>
<td>55.225.061.000.000</td>
<td>0,008</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-3.333.837.000.000</td>
<td>54.520.891.000.000</td>
<td>-0,061</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>-1.935.901.000.000</td>
<td>53.254.841.000.000</td>
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</tbody>
</table>

Sumber: Data diolah, 2016

3. Rasio *Earning Before Taxes to Current Liabilities* (X3)

Rumus $\text{EBT/CL} = \frac{\text{EBT}}{\text{Hutang Lancar}}$

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>EBIT</th>
<th>Hutang Lancar</th>
<th>EBIT/CL</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>-3.533.547.122.456</td>
<td>2.874.428.104.739</td>
<td>-1,229</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>-2.984.620.405.032</td>
<td>5.209.889.004.020</td>
<td>-0,573</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>-2.260.153.573.279</td>
<td>5.945.291.430.919</td>
<td>-0,380</td>
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<tr>
<td>FREN</td>
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<td>-1.811.605.549.836</td>
<td>3.030.849.454.832</td>
<td>-0,598</td>
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<tr>
<td></td>
<td>2013</td>
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<td>5.539.559.431.186</td>
<td>-0,489</td>
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<td>11.015.751.000.000</td>
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</table>

Sumber: Data diolah, 2016

4. Rasio *Sales to Total Asetts* (X4)

Rumus $\text{S/TA} = \frac{\text{Penjualan}}{\text{Total Aktiva}}$

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Penjualan</th>
<th>Total Aktiva</th>
<th>S/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>2.360.974.831.031</td>
<td>9.052.428.014.700</td>
<td>0,261</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2.072.434.729.924</td>
<td>9.128.135.053.900</td>
<td>0,227</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>1.179.181.751.298</td>
<td>7.588.560.916.085</td>
<td>0,155</td>
</tr>
<tr>
<td>FREN</td>
<td>2012</td>
<td>1.649.165.727.254</td>
<td>14.339.806.990.815</td>
<td>0,115</td>
</tr>
<tr>
<td></td>
<td>2013</td>
<td>2.428.857.501.221</td>
<td>15.866.493.429.557</td>
<td>0,153</td>
</tr>
<tr>
<td></td>
<td>2014</td>
<td>2.954.410.048.419</td>
<td>17.758.684.934.364</td>
<td>0,166</td>
</tr>
<tr>
<td>ISAT</td>
<td>2012</td>
<td>22.418.812.000.000</td>
<td>55.225.061.000.000</td>
<td>0,406</td>
</tr>
</tbody>
</table>
### C. Rasio-rasio dalam Model Zmijewski

1. **Rasio Return on Assets (X1)**

   \[ \text{Rumus ROA} = \frac{\text{EAT}}{\text{Total Aktiva}} \]

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>EAT</th>
<th>Total Aktiva</th>
<th>EAT/TA</th>
</tr>
</thead>
<tbody>
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<td>9.128.135.053.900</td>
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<tr>
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<td>2014</td>
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<td>7.588.560.916.085</td>
<td>-0,378</td>
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<td>14.339.806.990.815</td>
<td>-0,109</td>
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<td>15.866.493.429.557</td>
<td>-0,160</td>
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<tr>
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<td>2014</td>
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<td>-0,078</td>
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<td>ISAT</td>
<td>2012</td>
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<td>2013</td>
<td>-2.666.459.000.000</td>
<td>54.520.891.000.000</td>
<td>-0,049</td>
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<tr>
<td></td>
<td>2014</td>
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<td>53.254.841.000.000</td>
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</table>

   Sumber: Data diolah, 2016

2. **Rasio Hutang (Debt Ratio) (X2)**

   \[ \text{Rumus Debt Ratio} = \frac{\text{Total Hutang}}{\text{Total Aktiva}} \]

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Total Hutang</th>
<th>Total Aktiva</th>
<th>TL/TA</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>7.414.442.541.805</td>
<td>9.052.428.014.700</td>
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<td></td>
<td>2013</td>
<td>10.135.605.627.318</td>
<td>9.128.135.053.900</td>
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<tr>
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<td>2014</td>
<td>11.467.346.262.180</td>
<td>7.588.560.916.085</td>
<td>1,511</td>
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<tr>
<td>EXCL</td>
<td>2012</td>
<td>20.085.669.000.000</td>
<td>35.455.705.000.000</td>
<td>0,567</td>
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<tr>
<td></td>
<td>2013</td>
<td>24.977.479.000.000</td>
<td>40.277.626.000.000</td>
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<td>49.745.863.000.000</td>
<td>63.706.488.000.000</td>
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<td>ISAT</td>
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<td>55.225.061.000.000</td>
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</table>

   Sumber: Data diolah, 2016
3. Rasio Lancar (Current Ratio) (X3)

Rumus Current Ratio = \( \frac{Aktiva\ Lancar}{Hutang\ Lancar} \)

<table>
<thead>
<tr>
<th>Kode</th>
<th>Tahun</th>
<th>Aktiva Lancar</th>
<th>Hutang Lancar</th>
<th>CA/CL</th>
</tr>
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<tbody>
<tr>
<td>BTEL</td>
<td>2012</td>
<td>769.050.497.930</td>
<td>2.874.428.104.739</td>
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<td>466.135.508.578</td>
<td>5.209.889.004.020</td>
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<td>2014</td>
<td>149.520.345.786</td>
<td>5.945.291.430.919</td>
<td>0,025</td>
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<tr>
<td>FREN</td>
<td>2012</td>
<td>852.986.796.523</td>
<td>3.030.849.454.832</td>
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<tr>
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<td>2.014.295.403.669</td>
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<td>6.522.092.930.300</td>
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<tr>
<td>ISAT</td>
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<td>11.015.751.000.000</td>
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<td>2013</td>
<td>7.169.017.000.000</td>
<td>13.494.437.000.000</td>
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<td>8.591.684.000.000</td>
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</table>

Sumber: Data diolah, 2016
Lampiran 2
Penentuan Cutoff Model Zmijewski

<table>
<thead>
<tr>
<th>PERUSAHAAN</th>
<th>Cutoff 2012</th>
<th>Cutoff 2013</th>
<th>Cutoff 2014</th>
<th>Cutoff Rata-rata</th>
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</thead>
<tbody>
<tr>
<td>BTEL</td>
<td>-7,407</td>
<td>-9,325</td>
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<td>EXCL</td>
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<td>FREN</td>
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<td>ISAT</td>
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<td>-8,051</td>
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<td>-8,136</td>
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<td>-36,596</td>
<td>-33,656</td>
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<td>-8,37675</td>
<td>-9,149</td>
<td>-8,4125</td>
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<tr>
<td>t Tabel</td>
<td>3,182</td>
<td>3,182</td>
<td>3,182</td>
<td>3,182</td>
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<tr>
<td>Standar Deviasi</td>
<td>0,29390177</td>
<td>0,63956463</td>
<td>1,38389667</td>
<td>0,60395005</td>
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<tr>
<td>Batas Bawah</td>
<td>-8,179347716</td>
<td>-9,394297326</td>
<td>-11,3507796</td>
<td>-11,89647503</td>
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<tr>
<td>Batas Atas</td>
<td>-7,244152284</td>
<td>-7,359202674</td>
<td>-6,947220398</td>
<td>-4,9285249750</td>
</tr>
</tbody>
</table>

Perhitungan:

Perhitungan batas atas dan batas bawah interval X-Score

Batas bawah: $\bar{X} - t_{\alpha/2} \frac{sd}{\sqrt{n}}$

Batas Atas: $\bar{X} + t_{\alpha/2} \frac{sd}{\sqrt{n}}$

Tahun 2012

Batas bawah: $\bar{X} = -7,71175 - 3,182 \times \frac{0,29390177}{\sqrt{4}}$

$= -8,179347716$

Batas atas: $\bar{X} = -7,71175 + 3,182 \times \frac{0,29390177}{\sqrt{4}}$

$= -7,244152284$

Tahun 2013

Batas bawah: $\bar{X} = -8,37675 - 3,182 \times \frac{0,63956463}{\sqrt{4}}$

$= -9,394297326$

Batas atas: $\bar{X} = -8,37675 + 3,182 \times \frac{0,63956463}{\sqrt{4}}$
= -7,359202674

**Tahun 2014**

Batas bawah = -9,149 - 3,182 \cdot \frac{1,38389667}{\sqrt{4}}
= -11,3507796

Batas atas = -9,149 + 3,182 \cdot \frac{1,38389667}{\sqrt{4}}
= -6,947220398

**Rata-rata**

Batas bawah = -8,4125 - 3,182 \cdot \frac{0,60395005}{\sqrt{4}}
= -11,89647503

Batas atas = -8,4125 + 3,182 \cdot \frac{0,60395005}{\sqrt{4}}
= -4,9285249750