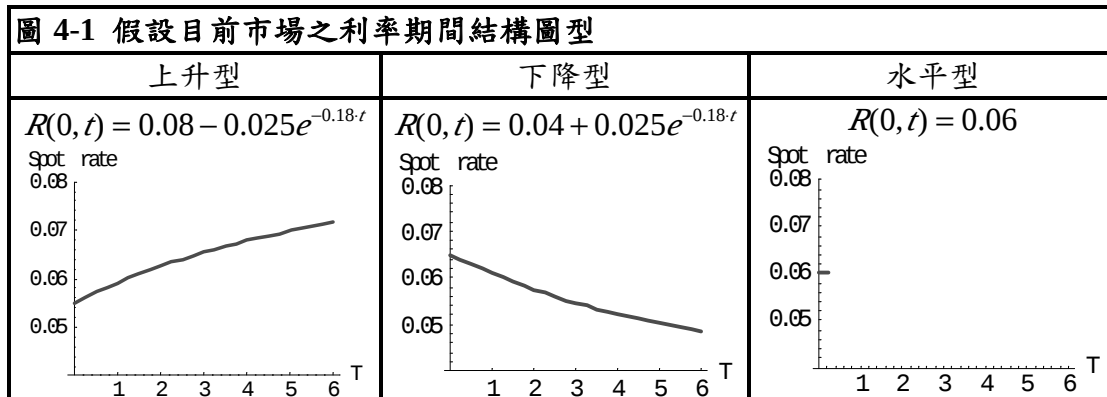


# 圖表附錄



**表 4-1 Levy's 及 Vorst's Methods 評價間斷型平均利率上限契約權利金之比較表**

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Levy Method                                                                                                                                                                                                                                                                                                                                                                                                                                     |         |         |                                           | Vorst Method                                                             |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|-------------------------------------------|--------------------------------------------------------------------------|-----|-----|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|-----|-----|-----|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 模型<br>參數                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | $dr = (q(t) - a \cdot r)dt + s \cdot dW_Q$<br>$a = 0.1, \quad s = 0.015$                                                                                                                                                                                                                                                                                                                                                                        |         |         |                                           | $dr = (q(t) - a \cdot r)dt + s \cdot dW_Q$<br>$a = 0.1, \quad s = 0.015$ |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| 契約<br>規格                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 契約期間內，每 3 個月選取一次指標利率，在契約到期日，計算出算術平均值來決定標的利率，以便在 T 時點做現金結算。                                                                                                                                                                                                                                                                                                                                                                                      |         |         |                                           | 契約期間內，每 3 個月選取一次指標利率，在契約到期日，計算出算術平均值來決定標的利率，以便在 T 時點做現金結算。               |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| 權<br>利<br>金<br>價<br>值      | 上升<br>型                                                                                                                                                                                                                                                                                                                                                                                                                                         | $R(0, t) = 0.08 - 0.025e^{-0.18 \cdot t}$                                                                                                                                                                                                                                                                                                                                                                                                       |         |         |                                           | $R(0, t) = 0.08 - 0.025e^{-0.18 \cdot t}$                                |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>0.84822</td><td>2.24907</td><td>3.88806</td></tr><tr><td>K=0.055</td><td>0.44806</td><td>1.51011</td><td>2.84453</td></tr><tr><td>K=0.06</td><td>0.17235</td><td>0.90666</td><td>1.94324</td></tr><tr><td>K=0.065</td><td>0.04338</td><td>0.47473</td><td>1.22370</td></tr><tr><td>K=0.07</td><td>0.00657</td><td>0.21191</td><td>0.70172</td></tr></table> |         |         |                                           |                                                                          | T=1 | T=2 | T=3    | K=0.05  | 0.84822 | 2.24907 | 3.88806 | K=0.055 | 0.44806 | 1.51011 | 2.84453 | K=0.06  | 0.17235 | 0.90666 | 1.94324 | K=0.065 | 0.04338 | 0.47473 | 1.22370 | K=0.07  | 0.00657 | 0.21191 | 0.70172                                                                                                                                                                                                                                                                                                                                                                                                                                         | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>0.84820</td><td>2.24893</td><td>3.88773</td></tr><tr><td>K=0.055</td><td>0.44801</td><td>1.50987</td><td>2.84403</td></tr><tr><td>K=0.06</td><td>0.17229</td><td>0.90635</td><td>1.94259</td></tr><tr><td>K=0.065</td><td>0.04334</td><td>0.47442</td><td>1.22299</td></tr><tr><td>K=0.07</td><td>0.00656</td><td>0.21168</td><td>0.70106</td></tr></table> |  |  |  |     | T=1 | T=2 | T=3    | K=0.05  | 0.84820 | 2.24893 | 3.88773 | K=0.055 | 0.44801 | 1.50987 | 2.84403 | K=0.06  | 0.17229 | 0.90635 | 1.94259 | K=0.065 | 0.04334 | 0.47442 | 1.22299 | K=0.07  | 0.00656 | 0.21168 | 0.70106 |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | T=1     | T=2     | T=3                                       |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | K=0.05                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.84822 | 2.24907 | 3.88806                                   |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.44806                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.51011                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.84453 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.17235                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.90666                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.94324 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.04338                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.47473                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.22370 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.00657                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.21191                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.70172 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | T=1                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=2                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=3     |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.05                     | 0.84820                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.24893                                                                                                                                                                                                                                                                                                                                                                                                                                         | 3.88773 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.44801                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.50987                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.84403 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.17229                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.90635                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.94259 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.04334                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.47442                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.22299 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.00656                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.21168                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.70106 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| 下降<br>型                    | $R(0, t) = 0.04 + 0.025e^{-0.18 \cdot t}$                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         | $R(0, t) = 0.04 + 0.025e^{-0.18 \cdot t}$ |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>1.13829</td><td>1.69522</td><td>2.03805</td></tr><tr><td>K=0.055</td><td>0.69568</td><td>1.04758</td><td>1.28609</td></tr><tr><td>K=0.06</td><td>0.33283</td><td>0.56766</td><td>0.73890</td></tr><tr><td>K=0.065</td><td>0.11148</td><td>0.26346</td><td>0.38223</td></tr><tr><td>K=0.07</td><td>0.02365</td><td>0.10263</td><td>0.17633</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         |                                           | T=1                                                                      | T=2 | T=3 | K=0.05 | 1.13829 | 1.69522 | 2.03805 | K=0.055 | 0.69568 | 1.04758 | 1.28609 | K=0.06  | 0.33283 | 0.56766 | 0.73890 | K=0.065 | 0.11148 | 0.26346 | 0.38223 | K=0.07  | 0.02365 | 0.10263 | 0.17633 | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>1.13830</td><td>1.69544</td><td>2.03872</td></tr><tr><td>K=0.055</td><td>0.69571</td><td>1.04788</td><td>1.28683</td></tr><tr><td>K=0.06</td><td>0.33289</td><td>0.56798</td><td>0.73958</td></tr><tr><td>K=0.065</td><td>0.11153</td><td>0.26371</td><td>0.38277</td></tr><tr><td>K=0.07</td><td>0.02368</td><td>0.10279</td><td>0.17669</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  | T=1 | T=2 | T=3 | K=0.05 | 1.13830 | 1.69544 | 2.03872 | K=0.055 | 0.69571 | 1.04788 | 1.28683 | K=0.06  | 0.33289 | 0.56798 | 0.73958 | K=0.065 | 0.11153 | 0.26371 | 0.38277 | K=0.07  | 0.02368 | 0.10279 | 0.17669 |         |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | T=1                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=2     | T=3     |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | K=0.05                                                                                                                                                                                                                                                                                                                                                                                                                                          | 1.13829                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.69522 | 2.03805 |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.69568                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.04758                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.28609 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.33283                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.56766                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.73890 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.11148                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.26346                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.38223 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.02365                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.10263                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.17633 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | T=1                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=2                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=3     |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.05                     | 1.13830                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.69544                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.03872 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.69571                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.04788                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.28683 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.33289                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.56798                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.73958 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.11153                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.26371                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.38277 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.02368                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.10279                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.17669 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| 水平<br>型                    | $R(0, t) = 0.06$                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         | $R(0, t) = 0.06$                          |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>0.99153</td><td>1.96593</td><td>2.90884</td></tr><tr><td>K=0.055</td><td>0.56650</td><td>1.26869</td><td>1.98908</td></tr><tr><td>K=0.06</td><td>0.24445</td><td>0.72495</td><td>1.25374</td></tr><tr><td>K=0.065</td><td>0.07132</td><td>0.35794</td><td>0.71954</td></tr><tr><td>K=0.07</td><td>0.01283</td><td>0.14946</td><td>0.37188</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         |                                           | T=1                                                                      | T=2 | T=3 | K=0.05 | 0.99153 | 1.96593 | 2.90884 | K=0.055 | 0.56650 | 1.26869 | 1.98908 | K=0.06  | 0.24445 | 0.72495 | 1.25374 | K=0.065 | 0.07132 | 0.35794 | 0.71954 | K=0.07  | 0.01283 | 0.14946 | 0.37188 | <table><tr><td></td><td>T=1</td><td>T=2</td><td>T=3</td></tr><tr><td>K=0.05</td><td>0.99153</td><td>1.96593</td><td>2.90884</td></tr><tr><td>K=0.055</td><td>0.56650</td><td>1.26869</td><td>1.98908</td></tr><tr><td>K=0.06</td><td>0.24445</td><td>0.72495</td><td>1.25375</td></tr><tr><td>K=0.065</td><td>0.07132</td><td>0.35794</td><td>0.71954</td></tr><tr><td>K=0.07</td><td>0.01283</td><td>0.14946</td><td>0.37188</td></tr></table> |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  | T=1 | T=2 | T=3 | K=0.05 | 0.99153 | 1.96593 | 2.90884 | K=0.055 | 0.56650 | 1.26869 | 1.98908 | K=0.06  | 0.24445 | 0.72495 | 1.25375 | K=0.065 | 0.07132 | 0.35794 | 0.71954 | K=0.07  | 0.01283 | 0.14946 | 0.37188 |         |
|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                 | T=1                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=2     | T=3     |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | K=0.05                                                                                                                                                                                                                                                                                                                                                                                                                                          | 0.99153                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.96593 | 2.90884 |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.56650                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.26869                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.98908 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.24445                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.72495                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.25374 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.07132                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.35794                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.71954 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.01283                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.14946                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.37188 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
|                            | T=1                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=2                                                                                                                                                                                                                                                                                                                                                                                                                                             | T=3     |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.05                     | 0.99153                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.96593                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2.90884 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.055                    | 0.56650                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.26869                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.98908 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.06                     | 0.24445                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.72495                                                                                                                                                                                                                                                                                                                                                                                                                                         | 1.25375 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.065                    | 0.07132                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.35794                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.71954 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| K=0.07                     | 0.01283                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.14946                                                                                                                                                                                                                                                                                                                                                                                                                                         | 0.37188 |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |
| 註：K 為上限利率，T 為契約期限，權利金單位為 % |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |         |         |                                           |                                                                          |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |  |  |     |     |     |        |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |         |

表 4-2 連續型平均利率上限契約與間斷型平均利率上限契約之權利金比較表

|                           |                  | 連續型平均利率上限契約                                                              | 間斷型平均利率上限契約<br>(Vorst Method)                                            |         |                  |                                           |         |         |         |         |         |         |         |
|---------------------------|------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|---------|------------------|-------------------------------------------|---------|---------|---------|---------|---------|---------|---------|
| 模型<br>參數                  |                  | $dr = (q(t) - a \cdot r)dt + S \cdot dW_Q$<br>$a = 0.1, \quad S = 0.015$ | $dr = (q(t) - a \cdot r)dt + S \cdot dW_Q$<br>$a = 0.1, \quad S = 0.015$ |         |                  |                                           |         |         |         |         |         |         |         |
| 契約<br>規格                  |                  | 選取契約期間內整條瞬間短期利率的波動路徑，計算出算術平均值來決定標的利率。                                    | 契約期間內，每 3 個月選取一次指標利率，在契約到期日，計算出算術平均值來決定標的利率，以便在 T 時點做現金結算。               |         |                  |                                           |         |         |         |         |         |         |         |
| 權利金價值                     | 上升型              | $R(0, t) = 0.08 - 0.025e^{-0.18 \cdot t}$                                |                                                                          |         |                  | $R(0, t) = 0.08 - 0.025e^{-0.18 \cdot t}$ |         |         |         |         |         |         |         |
|                           |                  | T=1                                                                      |                                                                          | T=2     |                  | T=3                                       |         | T=1     |         | T=2     |         | T=3     |         |
|                           |                  | K=0.05                                                                   | 0.91140                                                                  | 2.33328 | 3.95277          | K=0.05                                    | 0.84820 | 2.24893 | 3.88773 | K=0.055 | 0.44801 | 1.50987 | 2.84403 |
|                           |                  | K=0.055                                                                  | 0.54307                                                                  | 1.62148 | 2.93530          | K=0.055                                   | 0.44801 | 1.50987 | 2.84403 | K=0.06  | 0.17229 | 0.90635 | 1.94259 |
|                           |                  | K=0.06                                                                   | 0.27248                                                                  | 1.03355 | 2.05461          | K=0.06                                    | 0.17229 | 0.90635 | 1.94259 | K=0.065 | 0.04334 | 0.47442 | 1.22299 |
|                           |                  | K=0.065                                                                  | 0.11067                                                                  | 0.59454 | 1.34216          | K=0.065                                   | 0.04334 | 0.47442 | 1.22299 | K=0.07  | 0.00656 | 0.21168 | 0.70106 |
|                           | K=0.07           | 0.03519                                                                  | 0.30407                                                                  | 0.81050 | K=0.07           | 0.00656                                   | 0.21168 | 0.70106 |         |         |         |         |         |
|                           | 下降型              | $R(0, t) = 0.04 + 0.025e^{-0.18 \cdot t}$                                |                                                                          |         |                  | $R(0, t) = 0.04 + 0.025e^{-0.18 \cdot t}$ |         |         |         |         |         |         |         |
|                           |                  | T=1                                                                      |                                                                          | T=2     |                  | T=3                                       |         | T=1     |         | T=2     |         | T=3     |         |
|                           |                  | K=0.05                                                                   | 1.05638                                                                  | 1.62280 | 1.98262          | K=0.05                                    | 1.13830 | 1.69544 | 2.03872 | K=0.055 | 0.69571 | 1.04788 | 1.28683 |
| K=0.055                   |                  | 0.66221                                                                  | 1.03211                                                                  | 1.27854 | K=0.055          | 0.69571                                   | 1.04788 | 1.28683 | K=0.06  | 0.33289 | 0.56798 | 0.73958 |         |
| K=0.06                    |                  | 0.35469                                                                  | 0.59219                                                                  | 0.76100 | K=0.06           | 0.33289                                   | 0.56798 | 0.73958 | K=0.065 | 0.11153 | 0.26371 | 0.38277 |         |
| K=0.065                   |                  | 0.15586                                                                  | 0.30199                                                                  | 0.41453 | K=0.065          | 0.11153                                   | 0.26371 | 0.38277 | K=0.07  | 0.02368 | 0.10279 | 0.17669 |         |
| K=0.07                    | 0.05421          | 0.13510                                                                  | 0.20511                                                                  | K=0.07  | 0.02368          | 0.10279                                   | 0.17669 |         |         |         |         |         |         |
| 水平型                       | $R(0, t) = 0.06$ |                                                                          |                                                                          |         | $R(0, t) = 0.06$ |                                           |         |         |         |         |         |         |         |
|                           | T=1              |                                                                          | T=2                                                                      |         | T=3              |                                           | T=1     |         | T=2     |         | T=3     |         |         |
|                           | K=0.05           | 0.98310                                                                  | 1.96593                                                                  | 2.90028 | K=0.05           | 0.99153                                   | 1.96593 | 2.90884 | K=0.055 | 0.56650 | 1.26869 | 1.98908 |         |
|                           | K=0.055          | 0.60123                                                                  | 1.30982                                                                  | 2.01882 | K=0.055          | 0.56650                                   | 1.26869 | 1.98908 | K=0.06  | 0.24445 | 0.72495 | 1.25375 |         |
|                           | K=0.06           | 0.31187                                                                  | 0.79374                                                                  | 1.31035 | K=0.06           | 0.24445                                   | 0.72495 | 1.25375 | K=0.065 | 0.07132 | 0.35794 | 0.71954 |         |
|                           | K=0.065          | 0.13182                                                                  | 0.43070                                                                  | 0.78562 | K=0.065          | 0.07132                                   | 0.35794 | 0.71954 | K=0.07  | 0.01283 | 0.14946 | 0.37188 |         |
| K=0.07                    | 0.04385          | 0.20634                                                                  | 0.43136                                                                  | K=0.07  | 0.01283          | 0.14946                                   | 0.37188 |         |         |         |         |         |         |
| 註：K 為上限利率，T 為契約期限，權利金單位為% |                  |                                                                          |                                                                          |         |                  |                                           |         |         |         |         |         |         |         |