

17/12/2021

## מטריצות ריביות להיוון בישראל ליום 17.12.2021 (סוף יום)

### פרטי המערך

שם: רועי פולניצר  
השכלה: תואר ראשון בכלכלה (בהצטיינות) מאוניברסיטת Ben-Gurion University of the Negev (2006).  
תואר שני במנהל עסקים (בהצטיינות) מאוניברסיטת Ben-Gurion University of the Negev (2008).  
דיפלומה בניהול סיכונים פיננסיים במתכונת FRM® מאוניברסיטת Ariel University in Samaria (2012).  
דיפלומה ב- Data Science, Data Analysis, Machine Learning and Deep Learning with Python ממכללת ג'ון ברייס (2020).  
Professional Data Scientist of Professional Data Scientists' Israel Association (PDS).  
(FILAVFA) Fellow of Israel Association of Valuators and Financial Actuaries  
(FRM) Financial Risk Manager of Global Association of Risk Professionals  
(CRM) Certified Risk Manager of Israeli Association of Risk Managers  
.Sustaining Member of Professional Risk Managers' International Association

### מבוא

חוות דעת זו מציגה 4 מטריצות ריביות להיוון בישראל (שקלית, צמודה, דולרית וירו) לתקופות ביניים שונות בין שלושה חודשים ועד 25 שנה ולדירוגי אשראי בין ilAAA ועד ל- ilD בתקופה הרשומה לעיל.

### הנחות

- 1.1. החישוב נעשה על פי כללים אקטואריים מקובלים על ידי שימוש באלגוריתמים מתמטיים (Cubic Spline) ובהליכי אופטימיזציה.
- 1.2. מטריצת מרווחי סיכון האשראי הצמודה בישראל נגזרה מנתוני השוק של איגרות החוב הקונצרניות צמודות המדד בישראל ועקום הריבית הצמוד חסר הסיכון אשר חושב על ידי לאותו מועד.
- 1.3. מטריצת הריביות השקלית בישראל נגזרה מעקום הריבית השקלי חסר הסיכון בישראל אשר חושב על ידי לאותו מועד בתוספת מטריצת מרווחי סיכון האשראי הצמודה בישראל האמורה.
- 1.4. מטריצת הריביות הצמודה בישראל נגזרה מעקום הריבית הצמוד חסר הסיכון בישראל אשר חושב על ידי לאותו מועד בתוספת מטריצת מרווחי סיכון האשראי הצמודה בישראל האמורה.
- 1.5. מטריצת הריביות הדולרית בישראל נגזרה מעקום הריבית הדולרי חסר הסיכון בישראל אשר חושב על ידי לאותו מועד בתוספת מטריצת מרווחי סיכון האשראי הצמודה בישראל האמורה.
- 1.6. מטריצת הריביות בירו בישראל נגזרה מעקום הריבית בירו חסר הסיכון בישראל אשר חושב על ידי לאותו מועד בתוספת מטריצת מרווחי סיכון האשראי הצמודה בישראל האמורה.

*Roi Polanitzer*

רועי פולניצר, FRM, F.I.L.A.V.F.A.  
אקטואר

ilBB	ilBB+	ilBBB-	ilBBB	ilBBB+	ilA-	ilA	ilA+	ilAA-	ilAA	ilAA+	ilAAA	מח"מ
<b>מטריצת ריביות שקלית בישראל</b>												
34.41%	27.91%	21.42%	13.39%	5.36%	3.48%	2.42%	1.71%	1.45%	1.33%	1.24%	0.87%	<b>0.25</b>
23.91%	19.65%	15.39%	10.26%	5.12%	3.18%	2.24%	1.50%	1.42%	1.29%	1.22%	0.88%	<b>0.50</b>
20.98%	17.37%	13.76%	9.44%	5.12%	3.01%	2.10%	1.31%	1.37%	1.24%	1.16%	0.88%	<b>0.75</b>
18.83%	15.76%	12.69%	9.08%	5.47%	3.18%	2.18%	1.33%	1.38%	1.22%	1.12%	0.86%	<b>1</b>
14.96%	13.06%	11.15%	9.02%	6.88%	4.31%	3.02%	2.01%	1.92%	1.64%	1.45%	1.07%	<b>2</b>
13.56%	12.13%	10.70%	9.12%	7.55%	4.93%	3.58%	2.47%	2.35%	1.97%	1.75%	1.31%	<b>3</b>
11.52%	10.58%	9.63%	8.52%	7.42%	5.11%	4.02%	2.90%	2.83%	2.26%	2.02%	1.56%	<b>5</b>
9.89%	9.24%	8.60%	7.73%	6.87%	4.99%	4.24%	3.22%	3.22%	2.40%	2.10%	1.68%	<b>7</b>
8.19%	7.85%	7.51%	6.87%	6.23%	5.09%	4.78%	4.02%	4.12%	2.77%	2.32%	1.93%	<b>10</b>
7.29%	7.16%	7.02%	6.59%	6.15%	5.78%	5.81%	5.37%	5.52%	3.58%	2.88%	2.51%	<b>15</b>
6.95%	6.88%	6.80%	6.45%	6.10%	6.11%	6.30%	6.03%	6.20%	4.01%	3.18%	2.79%	<b>20</b>
<b>6.81%</b>	<b>6.77%</b>	<b>6.72%</b>	<b>6.36%</b>	<b>5.99%</b>	<b>6.27%</b>	<b>6.58%</b>	<b>6.40%</b>	<b>6.60%</b>	<b>4.24%</b>	<b>3.36%</b>	<b>2.98%</b>	<b>25</b>
ilD	ilSD	ilRD	ilC	ilCC	ilCCC-	ilCCC	ilCCC+	ilB-	ilB	ilB+	ilBB-	מח"מ
<b>מטריצת ריביות שקלית בישראל - המשך</b>												
127.02%	118.69%	110.36%	102.03%	93.70%	85.37%	77.04%	68.71%	60.38%	53.89%	47.39%	40.90%	<b>0.25</b>
87.65%	81.82%	75.98%	70.14%	64.30%	58.47%	52.63%	46.79%	40.95%	36.69%	32.43%	28.17%	<b>0.50</b>
75.67%	70.64%	65.61%	60.58%	55.55%	50.52%	45.49%	40.46%	35.42%	31.81%	28.20%	24.59%	<b>0.75</b>
66.86%	62.39%	57.92%	53.45%	48.97%	44.50%	40.03%	35.56%	31.09%	28.02%	24.96%	21.89%	<b>1</b>
47.42%	44.32%	41.21%	38.11%	35.00%	31.90%	28.80%	25.69%	22.59%	20.68%	18.78%	16.87%	<b>2</b>
37.75%	35.44%	33.13%	30.82%	28.52%	26.21%	23.90%	21.59%	19.28%	17.85%	16.42%	14.99%	<b>3</b>
25.11%	23.89%	22.66%	21.44%	20.21%	18.98%	17.76%	16.53%	15.31%	14.36%	13.41%	12.47%	<b>5</b>
17.36%	16.75%	16.14%	15.53%	14.91%	14.30%	13.69%	13.07%	12.46%	11.82%	11.17%	10.53%	<b>7</b>
10.65%	10.51%	10.37%	10.24%	10.10%	9.96%	9.82%	9.69%	9.55%	9.21%	8.87%	8.53%	<b>10</b>
7.53%	7.57%	7.60%	7.64%	7.67%	7.71%	7.74%	7.78%	7.81%	7.68%	7.55%	7.42%	<b>15</b>
6.96%	6.99%	7.03%	7.07%	7.10%	7.14%	7.18%	7.21%	7.25%	7.18%	7.10%	7.03%	<b>20</b>
<b>6.55%</b>	<b>6.60%</b>	<b>6.66%</b>	<b>6.71%</b>	<b>6.77%</b>	<b>6.82%</b>	<b>6.88%</b>	<b>6.94%</b>	<b>6.99%</b>	<b>6.95%</b>	<b>6.90%</b>	<b>6.86%</b>	<b>25</b>

ilBB	ilBB+	ilBBB-	ilBBB	ilBBB+	ilA-	ilA	ilA+	ilAA-	ilAA	ilAA+	ilAAA	מח"מ
<b>מטריצת ריביות צמודה בישראל</b>												
33.59%	27.10%	20.60%	12.57%	4.54%	2.66%	1.60%	0.90%	0.64%	0.51%	0.42%	0.05%	<b>0.25</b>
22.37%	18.11%	13.85%	8.71%	3.58%	1.64%	0.70%	-0.04%	-0.13%	-0.25%	-0.32%	-0.66%	<b>0.50</b>
18.71%	15.10%	11.49%	7.17%	2.85%	0.74%	-0.16%	-0.96%	-0.90%	-1.03%	-1.11%	-1.39%	<b>0.75</b>
16.46%	13.39%	10.33%	6.71%	3.10%	0.81%	-0.19%	-1.04%	-0.99%	-1.15%	-1.24%	-1.51%	<b>1</b>
12.56%	10.66%	8.75%	6.62%	4.48%	1.91%	0.61%	-0.39%	-0.49%	-0.77%	-0.95%	-1.33%	<b>2</b>
11.07%	9.64%	8.21%	6.64%	5.06%	2.44%	1.09%	-0.01%	-0.14%	-0.52%	-0.73%	-1.18%	<b>3</b>
9.00%	8.05%	7.10%	6.00%	4.89%	2.58%	1.50%	0.37%	0.30%	-0.26%	-0.50%	-0.96%	<b>5</b>
7.41%	6.76%	6.12%	5.26%	4.39%	2.51%	1.76%	0.74%	0.74%	-0.08%	-0.38%	-0.79%	<b>7</b>
5.72%	5.38%	5.04%	4.40%	3.76%	2.61%	2.31%	1.55%	1.65%	0.29%	-0.16%	-0.55%	<b>10</b>
4.75%	4.62%	4.49%	4.05%	3.61%	3.24%	3.27%	2.83%	2.99%	1.04%	0.35%	-0.02%	<b>15</b>
4.41%	4.34%	4.26%	3.91%	3.56%	3.57%	3.77%	3.49%	3.66%	1.47%	0.64%	0.25%	<b>20</b>
<b>4.27%</b>	<b>4.23%</b>	<b>4.18%</b>	<b>3.82%</b>	<b>3.45%</b>	<b>3.73%</b>	<b>4.04%</b>	<b>3.87%</b>	<b>4.06%</b>	<b>1.70%</b>	<b>0.82%</b>	<b>0.44%</b>	<b>25</b>
ilD	ilSD	ilRD	ilC	ilCC	ilCCC-	ilCCC	ilCCC+	ilB-	ilB	ilB+	ilBB-	מח"מ
<b>מטריצת ריביות צמודה בישראל - המשך</b>												
126.20%	117.87%	109.54%	101.21%	92.88%	84.55%	76.22%	67.89%	59.57%	53.07%	46.58%	40.08%	<b>0.25</b>
86.11%	80.27%	74.43%	68.60%	62.76%	56.92%	51.08%	45.25%	39.41%	35.15%	30.89%	26.63%	<b>0.50</b>
73.40%	68.37%	63.34%	58.31%	53.28%	48.25%	43.22%	38.19%	33.16%	29.54%	25.93%	22.32%	<b>0.75</b>
64.49%	60.02%	55.55%	51.08%	46.61%	42.14%	37.67%	33.19%	28.72%	25.66%	22.59%	19.53%	<b>1</b>
45.02%	41.92%	38.81%	35.71%	32.60%	29.50%	26.39%	23.29%	20.18%	18.28%	16.37%	14.47%	<b>2</b>
35.27%	32.96%	30.65%	28.34%	26.03%	23.72%	21.41%	19.10%	16.80%	15.37%	13.93%	12.50%	<b>3</b>
22.59%	21.36%	20.14%	18.91%	17.68%	16.46%	15.23%	14.01%	12.78%	11.83%	10.89%	9.94%	<b>5</b>
14.89%	14.27%	13.66%	13.05%	12.43%	11.82%	11.21%	10.59%	9.98%	9.34%	8.69%	8.05%	<b>7</b>
8.17%	8.04%	7.90%	7.76%	7.62%	7.49%	7.35%	7.21%	7.07%	6.73%	6.39%	6.05%	<b>10</b>
4.99%	5.03%	5.06%	5.10%	5.14%	5.17%	5.21%	5.24%	5.28%	5.14%	5.01%	4.88%	<b>15</b>
4.42%	4.46%	4.49%	4.53%	4.57%	4.60%	4.64%	4.68%	4.71%	4.64%	4.56%	4.49%	<b>20</b>
<b>4.01%</b>	<b>4.06%</b>	<b>4.12%</b>	<b>4.17%</b>	<b>4.23%</b>	<b>4.29%</b>	<b>4.34%</b>	<b>4.40%</b>	<b>4.45%</b>	<b>4.41%</b>	<b>4.36%</b>	<b>4.32%</b>	<b>25</b>

ilBB	ilBB+	ilBBB-	ilBBB	ilBBB+	ilA-	ilA	ilA+	ilAA-	ilAA	ilAA+	ilAAA	מח"מ
<b>מטריצת ריביות דולרית בישראל</b>												
35.32%	28.83%	22.33%	14.30%	6.27%	4.39%	3.33%	2.63%	2.37%	2.24%	2.15%	1.78%	<b>0.25</b>
24.94%	20.68%	16.41%	11.28%	6.15%	4.21%	3.26%	2.53%	2.44%	2.32%	2.24%	1.91%	<b>0.50</b>
22.12%	18.51%	14.90%	10.58%	6.26%	4.15%	3.25%	2.45%	2.51%	2.38%	2.31%	2.02%	<b>0.75</b>
20.08%	17.02%	13.95%	10.34%	6.73%	4.44%	3.44%	2.59%	2.64%	2.48%	2.38%	2.12%	<b>1</b>
16.55%	14.64%	12.74%	10.60%	8.47%	5.90%	4.60%	3.59%	3.50%	3.22%	3.03%	2.65%	<b>2</b>
15.22%	13.79%	12.36%	10.78%	9.21%	6.59%	5.24%	4.13%	4.01%	3.63%	3.41%	2.97%	<b>3</b>
13.02%	12.08%	11.13%	10.03%	8.92%	6.61%	5.52%	4.40%	4.33%	3.77%	3.53%	3.06%	<b>5</b>
11.21%	10.57%	9.93%	9.06%	8.19%	6.32%	5.57%	4.54%	4.54%	3.72%	3.43%	3.01%	<b>7</b>
9.21%	8.87%	8.53%	7.89%	7.25%	6.11%	5.80%	5.04%	5.14%	3.79%	3.34%	2.95%	<b>10</b>
7.71%	7.58%	7.45%	7.01%	6.57%	6.21%	6.24%	5.79%	5.95%	4.01%	3.31%	2.94%	<b>15</b>
7.07%	7.00%	6.92%	6.57%	6.22%	6.23%	6.42%	6.15%	6.32%	4.13%	3.30%	2.91%	<b>20</b>
<b>6.69%</b>	<b>6.64%</b>	<b>6.60%</b>	<b>6.23%</b>	<b>5.87%</b>	<b>6.15%</b>	<b>6.45%</b>	<b>6.28%</b>	<b>6.48%</b>	<b>4.12%</b>	<b>3.24%</b>	<b>2.86%</b>	<b>25</b>
ilD	ilSD	ilRD	ilC	ilCC	ilCCC-	ilCCC	ilCCC+	ilB-	ilB	ilB+	ilBB-	מח"מ
<b>מטריצת ריביות דולרית בישראל - המשך</b>												
127.93%	119.60%	111.27%	102.94%	94.61%	86.28%	77.95%	69.62%	61.29%	54.80%	48.31%	41.81%	<b>0.25</b>
88.68%	82.84%	77.00%	71.16%	65.33%	59.49%	53.65%	47.81%	41.98%	37.72%	33.46%	29.20%	<b>0.50</b>
76.81%	71.78%	66.75%	61.72%	56.69%	51.66%	46.63%	41.60%	36.57%	32.96%	29.34%	25.73%	<b>0.75</b>
68.12%	63.65%	59.18%	54.71%	50.23%	45.76%	41.29%	36.82%	32.35%	29.28%	26.22%	23.15%	<b>1</b>
49.00%	45.90%	42.79%	39.69%	36.59%	33.48%	30.38%	27.27%	24.17%	22.26%	20.36%	18.45%	<b>2</b>
39.41%	37.10%	34.79%	32.48%	30.17%	27.87%	25.56%	23.25%	20.94%	19.51%	18.08%	16.65%	<b>3</b>
26.62%	25.39%	24.16%	22.94%	21.71%	20.49%	19.26%	18.03%	16.81%	15.86%	14.92%	13.97%	<b>5</b>
18.69%	18.08%	17.46%	16.85%	16.24%	15.62%	15.01%	14.40%	13.78%	13.14%	12.50%	11.86%	<b>7</b>
11.67%	11.53%	11.39%	11.25%	11.12%	10.98%	10.84%	10.70%	10.57%	10.23%	9.89%	9.55%	<b>10</b>
7.96%	7.99%	8.03%	8.06%	8.10%	8.13%	8.17%	8.20%	8.24%	8.11%	7.98%	7.84%	<b>15</b>
7.08%	7.12%	7.15%	7.19%	7.22%	7.26%	7.30%	7.33%	7.37%	7.30%	7.22%	7.15%	<b>20</b>
<b>6.42%</b>	<b>6.48%</b>	<b>6.54%</b>	<b>6.59%</b>	<b>6.65%</b>	<b>6.70%</b>	<b>6.76%</b>	<b>6.81%</b>	<b>6.87%</b>	<b>6.82%</b>	<b>6.78%</b>	<b>6.73%</b>	<b>25</b>

ilBB	ilBB+	ilBBB-	ilBBB	ilBBB+	ilA-	ilA	ilA+	ilAA-	ilAA	ilAA+	ilAAA	מח"מ
<b>מטריצת ריביות ביוור בישראל</b>												
34.49%	28.00%	21.50%	13.47%	5.44%	3.56%	2.51%	1.80%	1.54%	1.41%	1.33%	0.95%	<b>0.25</b>
24.05%	19.79%	15.53%	10.40%	5.26%	3.32%	2.38%	1.64%	1.56%	1.43%	1.36%	1.02%	<b>0.50</b>
21.18%	17.56%	13.95%	9.64%	5.32%	3.20%	2.30%	1.51%	1.57%	1.43%	1.36%	1.07%	<b>0.75</b>
19.07%	16.01%	12.94%	9.33%	5.72%	3.43%	2.43%	1.58%	1.63%	1.47%	1.37%	1.11%	<b>1</b>
15.31%	13.40%	11.50%	9.36%	7.23%	4.66%	3.36%	2.35%	2.26%	1.98%	1.79%	1.41%	<b>2</b>
13.87%	12.44%	11.01%	9.43%	7.86%	5.24%	3.89%	2.78%	2.66%	2.28%	2.06%	1.62%	<b>3</b>
11.63%	10.69%	9.74%	8.64%	7.53%	5.22%	4.13%	3.01%	2.94%	2.38%	2.14%	1.67%	<b>5</b>
9.81%	9.17%	8.53%	7.66%	6.79%	4.92%	4.17%	3.14%	3.14%	2.32%	2.03%	1.61%	<b>7</b>
7.85%	7.51%	7.17%	6.53%	5.89%	4.75%	4.44%	3.68%	3.78%	2.43%	1.98%	1.59%	<b>10</b>
6.39%	6.26%	6.13%	5.69%	5.25%	4.89%	4.92%	4.47%	4.63%	2.69%	1.99%	1.62%	<b>15</b>
5.74%	5.67%	5.59%	5.24%	4.89%	4.90%	5.09%	4.82%	4.99%	2.80%	1.97%	1.58%	<b>20</b>
<b>5.34%</b>	<b>5.30%</b>	<b>5.25%</b>	<b>4.89%</b>	<b>4.52%</b>	<b>4.80%</b>	<b>5.11%</b>	<b>4.93%</b>	<b>5.13%</b>	<b>2.77%</b>	<b>1.89%</b>	<b>1.51%</b>	<b>25</b>
ilD	ilSD	ilRD	ilC	ilCC	ilCCC-	ilCCC	ilCCC+	ilB-	ilB	ilB+	ilBB-	מח"מ
<b>מטריצת ריביות ביוור בישראל - המשך</b>												
127.10%	118.77%	110.44%	102.11%	93.78%	85.45%	77.12%	68.80%	60.47%	53.97%	47.48%	40.98%	<b>0.25</b>
87.79%	81.96%	76.12%	70.28%	64.44%	58.60%	52.77%	46.93%	41.09%	36.83%	32.57%	28.31%	<b>0.50</b>
75.86%	70.83%	65.80%	60.77%	55.74%	50.71%	45.68%	40.65%	35.62%	32.01%	28.40%	24.79%	<b>0.75</b>
67.11%	62.64%	58.17%	53.70%	49.22%	44.75%	40.28%	35.81%	31.34%	28.27%	25.21%	22.14%	<b>1</b>
47.76%	44.66%	41.55%	38.45%	35.35%	32.24%	29.14%	26.03%	22.93%	21.02%	19.12%	17.21%	<b>2</b>
38.06%	35.75%	33.44%	31.13%	28.82%	26.52%	24.21%	21.90%	19.59%	18.16%	16.73%	15.30%	<b>3</b>
25.23%	24.00%	22.77%	21.55%	20.32%	19.10%	17.87%	16.64%	15.42%	14.47%	13.53%	12.58%	<b>5</b>
17.29%	16.68%	16.06%	15.45%	14.84%	14.22%	13.61%	13.00%	12.38%	11.74%	11.10%	10.46%	<b>7</b>
10.31%	10.17%	10.03%	9.89%	9.76%	9.62%	9.48%	9.34%	9.21%	8.87%	8.53%	8.19%	<b>10</b>
6.64%	6.67%	6.71%	6.74%	6.78%	6.81%	6.85%	6.88%	6.92%	6.79%	6.66%	6.52%	<b>15</b>
5.75%	5.79%	5.82%	5.86%	5.89%	5.93%	5.97%	6.00%	6.04%	5.97%	5.89%	5.82%	<b>20</b>
<b>5.08%</b>	<b>5.13%</b>	<b>5.19%</b>	<b>5.24%</b>	<b>5.30%</b>	<b>5.35%</b>	<b>5.41%</b>	<b>5.47%</b>	<b>5.52%</b>	<b>5.48%</b>	<b>5.43%</b>	<b>5.39%</b>	<b>25</b>