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Asetuksen 4 §:ssä tarkoitettu pääomakerroin lasketaan kaavalla:

$$(1) \quad P_{x+\frac{1}{2}} = \frac{1}{m} \sum_{k \geq 0} \sum_{l=0}^{m-1} d_{x+\frac{1}{2}}(k + \frac{l}{m})$$

missä  $x + \frac{1}{2}$  on pääomakerroimen laskennassa käytettävä ikä asetuksen 4 §:n mukaisesti,  $m = 12$ , indeksi  $k$  viittaa kokonaisten vuosien ja  $l$  vuoden murto-osien määrään (eli kuukausiin) pääomakerroimen laskentaiästä eteenpäin.

Sekä kuolevuuden että koron vaikutukset sisältävät diskonttauskertoimet laskentaiälle  $x + \frac{1}{2}$  hetkellä  $k + \frac{l}{m}$  lasketaan tulona

$$(2) \quad d_{x+\frac{1}{2}}(k + \frac{l}{m}) = p_{x+\frac{1}{2}}(k + \frac{l}{m}) \cdot v(k + \frac{l}{m}) = [1 - q_{x+\frac{1}{2}}(k + \frac{l}{m})] \cdot v(k + \frac{l}{m}),$$

missä  $p_{x+\frac{1}{2}}(k + \frac{l}{m})$  tarkoittaa todennäköisyyttä sille, että  $x + \frac{1}{2}$ -ikäinen henkilö elää vielä iässä  $x + \frac{1}{2} + k + \frac{l}{m}$  ja vastaavasti  $q_{x+\frac{1}{2}}(k + \frac{l}{m})$  tarkoittaa todennäköisyyttä sille, että jos henkilö on elossa iässä  $x + \frac{1}{2}$ , hän kuolee ikään  $x + \frac{1}{2} + k + \frac{l}{m}$  mennessä.

Termi  $v(k + \frac{l}{m})$  on korkoon liittyvä diskonttaustekijä tulevaisuudessa hetkellä  $k + \frac{l}{m}$  maksettavalle suoritukselle, ja vakiokorolla  $i$  pätee:

$$(3) \quad v(k + \frac{l}{m}) = \left(\frac{1}{1+i}\right)^{k+\frac{l}{m}}.$$

Todennäköisyydet  $p_{x+\frac{1}{2}}(k + \frac{l}{m})$  perustuvat diskreettiin referenssikuolevuusmalliin, jossa kuolevuudet määritellään kullekin syntymävuosikymmenkohortille ja iälle  $x$ , ja lasketaan estimaatilla, joka perustuu oletukseen kuolinhetkien tasajakaumasta ikävuoden sisällä:

$$(4) \quad q_x(1) = \min\left\{\frac{\tilde{m}_x}{1 + \frac{1}{2}\tilde{m}_x}, 1\right\},$$

$$p_x(\frac{l}{m}) = 1 - (\frac{l}{m}) \cdot q_x(1),$$

$$p_x(k + \frac{l}{m}) = p_x(k) \cdot p_{x+k}(\frac{l}{m}) = \left(\prod_{u=0}^{k-1} p_{x+u}(1)\right) \cdot p_{x+k}(\frac{l}{m}),$$

$$p_{x+\frac{1}{2}}(k + \frac{l}{m}) = \frac{p_x(\frac{1}{2} + k + \frac{l}{m})}{p_x(\frac{1}{2})} = \frac{p_x(k) \cdot p_{x+k}(\frac{1}{2} + \frac{l}{m})}{p_x(\frac{1}{2})}.$$

Kuolevuusennuste  $\tilde{m}_x$  kokonaisluvuille  $x$  saadaan referenssikuolevuusmallista. Referenssikuolevuusmallin kuolevuusennusteen  $\tilde{m}_x$  arvot esitetään taulukossa 1.

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Taulukko 1: Kuolevuusennusteet referenssikuolevuusmalli K2016

Ikä x	Syntymävuodet < 1940	Syntymävuodet 1940-1949	Syntymävuodet 1950-1959	Syntymävuodet 1960-1969	Syntymävuodet 1970-1979	Syntymävuodet 1980-1989	Syntymävuodet 1990-1999	Syntymävuodet 2000-2009	Syntymävuodet ≥ 2010
0									0.00384575149
1									0.00028744350
2									0.00024098288
3									0.00017978166
4									0.00014271317
5									0.00002303620
6									0.00015350129
7									0.00020127334
8									0.00012851824
9									0.00010701087
10								0.00027762513	0.00019055305
11								0.00002988288	0.00001936764
12								0.00014626215	0.00010163751
13								0.00014247175	0.00010470021
14								0.00016329863	0.00011951291
15								0.00013524692	0.00010346308
16								0.00050813861	0.00040615488
17								0.00030061800	0.00023713240
18								0.00077082146	0.00066780226
19								0.00052988095	0.00045211501
20							0.00100375677	0.00088219718	0.00078617056
21							0.00067207409	0.00057783996	0.00050204989
22							0.00080489688	0.00068089876	0.00058087957
23							0.00081796364	0.00070009006	0.00060342079
24							0.00099913510	0.00083944358	0.00070949545
25							0.00123721219	0.00104652455	0.00088980157
26							0.00107896635	0.00090112711	0.00075600066
27							0.00104791367	0.00087348743	0.00073099990
28							0.00092276408	0.00075947218	0.00062729709
29							0.00119659282	0.00099799802	0.00083501467
30						0.00113111815	0.00092554762	0.00076789793	0.00063893121
31						0.00124977224	0.00103659144	0.00086882689	0.00073011051
32						0.00135084817	0.00110783229	0.00091622633	0.0007595740
33						0.00149402940	0.00120043202	0.00097132024	0.00078764146
34						0.00118528282	0.00096874519	0.00079650395	0.00065619121
35						0.00127745618	0.00103646060	0.00084527516	0.00069062027
36						0.00156797278	0.00127075236	0.00103452572	0.00084363966
37						0.00152412152	0.00123599971	0.00100634443	0.00082064659
38						0.00170216701	0.00139895047	0.00115383239	0.00095305039
39						0.00112746364	0.00090903795	0.00073526285	0.00059551448
40					0.00172714023	0.00140255671	0.00115485429	0.00095362984	0.00078846448
41					0.00221968455	0.00181553884	0.00150061305	0.00124354529	0.00103173556
42					0.00240224506	0.00193375871	0.00156981517	0.00127739097	0.00104059218
43					0.00195643540	0.00158523483	0.00129350510	0.00105775221	0.00086586758
44					0.00259701948	0.00209548334	0.00170092051	0.00138340049	0.00112625428
45					0.00280087757	0.00228154541	0.00186811079	0.00153239967	0.00125817553
46					0.00303794450	0.00249808244	0.00206343911	0.00170730801	0.00141386848
47					0.00332356833	0.00271575933	0.00222796035	0.00183064814	0.00150542170

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48				0.00359945881	0.00294396744	0.00241640104	0.00198626769	0.00163396591
49				0.00324313015	0.00263743474	0.00215169250	0.00175779324	0.00143705656
50			0.00410218285	0.00330899549	0.00270639555	0.00221989403	0.00182315199	0.00149835720
51			0.00484956305	0.00394451786	0.00324215768	0.00267180065	0.00220438718	0.00181994433
52			0.00530536129	0.00431533738	0.00353977626	0.00291048893	0.00239572787	0.00197324523
53			0.00543541000	0.00437938067	0.00355336262	0.00288939968	0.00235194657	0.00191560496
54			0.00568235333	0.00459581867	0.00373928301	0.00304844166	0.00248766596	0.00203119882
55			0.00516535409	0.00417824068	0.00339723295	0.00276728005	0.00225621592	0.00184052939
56			0.00553060092	0.00449480678	0.00366950678	0.00300081822	0.00245611444	0.00201131995
57			0.00603354464	0.00487419756	0.00395333150	0.00321147527	0.00261096954	0.00212379443
58			0.00693291314	0.00560964446	0.00455507078	0.00370414241	0.00301450960	0.00245442379
59			0.00634808000	0.00508448242	0.00408537804	0.00328705408	0.00264667087	0.00213200358
60	0.00803033427	0.00638530592	0.00514806153	0.00416247490	0.00336983926	0.00273003738	0.00221265885	0.00184052939
61	0.00882147039	0.00701026492	0.00562959004	0.00453261489	0.00365371593	0.00294718325	0.00237825279	0.00197324523
62	0.00884123906	0.00700724329	0.00560070276	0.00448711227	0.00359892454	0.00288835512	0.00231899315	0.00191560496
63	0.00989615135	0.00785427040	0.00627757358	0.00502827515	0.00403179087	0.00323471208	0.00259619457	0.00203119882
64	0.01022668618	0.00810292155	0.00645861118	0.00515823051	0.00412369918	0.00329852214	0.00263942390	0.00212379443
65	0.00884814051	0.00703364793	0.00562014810	0.00449894626	0.00360473723	0.00288982117	0.00231749788	0.00197324523
66	0.00933384168	0.00737883380	0.00585966770	0.00466115532	0.00371100105	0.00295605312	0.00235547479	0.00191560496
67	0.01049491652	0.00824534125	0.00650380915	0.00513816666	0.00406260368	0.00321376546	0.00254309941	0.00203119882
68	0.01199691228	0.00944422563	0.00746110997	0.00590300675	0.00467390164	0.00370245461	0.00293382372	0.00212379443
69	0.01048734043	0.00823034982	0.00647966219	0.00510828988	0.00403011272	0.00318092738	0.00251142004	0.00203119882
70	0.01648471389	0.01277881091	0.01004415505	0.00791739389	0.00624885942	0.00493538578	0.00389967053	0.00308218688
71	0.0161610334745	0.01247816671	0.00977089381	0.00767092109	0.00602940759	0.00474229071	0.00373147228	0.00293691885
72	0.01690512918	0.01310705365	0.01024832584	0.00803211388	0.00630214197	0.00494787307	0.00388615348	0.00305306954
73	0.01785080633	0.01397464825	0.01101717823	0.00870444579	0.00688436068	0.00544809629	0.00431310379	0.00341543695
74	0.02197212598	0.01717266813	0.01350188093	0.01063689498	0.00838803227	0.00661837714	0.00522396482	0.00412435732
75	0.02204630960	0.01727802719	0.01361102787	0.01074196182	0.00848547284	0.00670660981	0.00530250459	0.00419336475
76	0.02410851441	0.01889111278	0.01486971321	0.01172419336	0.00925209891	0.00730501676	0.00576962033	0.00455798896
77	0.02633848196	0.02074057713	0.01639760579	0.01298438218	0.01029006246	0.00815883563	0.00647109525	0.00513362361
78	0.03002116317	0.02382831497	0.01898013799	0.01514042794	0.01208685706	0.00965367127	0.00771268734	0.00616328614
79	0.03144794435	0.02490323898	0.01978338264	0.01573745006	0.01252814205	0.00997777886	0.00794895651	0.00633397961
80	0.04588084313	0.03615716568	0.02889158068	0.02315229808	0.01857661443	0.01491560514	0.01198123668	0.00962690436
81	0.04996368023	0.03994232046	0.03226718307	0.02613476060	0.02119287643	0.01719680189	0.01395995394	0.01133548127
82	0.05286852135	0.04246119313	0.03439129169	0.02792118625	0.02269345584	0.01845607942	0.01501582834	0.01222009237
83	0.05880601251	0.04760276678	0.03880512638	0.03170204431	0.02592609902	0.02121513266	0.01736674000	0.01422008140
84	0.06835850103	0.05579047806	0.04580558508	0.03768260239	0.03103044217	0.02556708634	0.02107326486	0.01737359613
85	0.07526062718	0.06194079227	0.05124177884	0.04246856150	0.03522983960	0.02924073804	0.02427822963	0.02016272718
86	0.08568306132	0.07103395877	0.05915548558	0.04934684103	0.04120032141	0.03441640521	0.02875911238	0.02403728790
87	0.09701939290	0.08111595238	0.06809002577	0.05724558127	0.04816774476	0.04054936969	0.03414690443	0.02876174243
88	0.11088067382	0.09381082650	0.07965082606	0.06772676906	0.05763242347	0.04906561997	0.04178513401	0.03559259826
89	0.12401311870	0.10578022723	0.09051540578	0.07755853713	0.06650513895	0.05705263446	0.04895817744	0.04202087333
90	0.14005734218	0.12057203014	0.10409578500	0.08998484558	0.07784082950	0.06736464013	0.05831506621	0.05049133947
91	0.15376496081	0.13392490101	0.11694859210	0.10224511511	0.08944921656	0.07828688786	0.06853638572	0.06001197015
92	0.17673028906	0.156326269551	0.13867059953	0.12311671836	0.10937591797	0.09720697360	0.08641487033	0.07683540069
93	0.19885482189	0.17482227885	0.15402764936	0.13584771523	0.11988494794	0.10583783658	0.09346058133	0.08254584849
94	0.22759770251	0.20262167766	0.18074572789	0.16138932252	0.14418754706	0.12886590331	0.11520082768	0.10300301488
95	0.22567033343	0.20422481115	0.18515628011	0.16802277493	0.15255709420	0.13856312952	0.12588284028	0.11438254986
96	0.26117089371	0.23641290638	0.21436452547	0.19454118940	0.17664195848	0.16044317400	0.14576344848	0.13244883525
97	0.30226768137	0.27367853969	0.24818242115	0.22524603901	0.20452987817	0.18577864591	0.16878406763	0.15336880969
98	0.34984334737	0.31682300539	0.28733765998	0.26079835191	0.23682144065	0.21511529725	0.19544067590	0.17759325605

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99	0.40491983868	0.36677408785	0.33267283217	0.30196354487	0.27421208852	0.24908508255	0.22630759769	0.20564416822	0.18688879196
100	0.46868038438	0.42460603259	0.38516356934	0.34962790975	0.31750710201	0.28841977553	0.26204987999	0.23812600077	0.21641031321
101	0.54249495323	0.49156267114	0.44593955400	0.40481770409	0.36763894784	0.33396673676	0.30343762385	0.27573869602	0.25059535807
102	0.62794973107	0.56908419756	0.51630884703	0.46872125692	0.42568736861	0.38670717206	0.35136258002	0.31929276899	0.29018065270
103	0.72688125243	0.65883817337	0.59778605746	0.54271456627	0.49290264547	0.44777727523	0.40685736624	0.36972677570	0.33601931224
104	0.84141592161	0.76275542868	0.69212496113	0.62839093971	0.57073253541	0.51849271076	0.47111772044	0.42812754103	0.38909922856
105	0.97401577385	0.88307163289	0.80135627121	0.72759531677	0.66085346372	0.60037696400	0.54552826952	0.49575358234	0.45056436313
106	1.12753146232	1.02237543021	0.92783137405	0.84246401264	0.76520664361	0.69519416997	0.63169236901	0.57406223366	0.52173940388
107	1.30526361181	1.18366417693	1.07427297280	0.97547073955	0.88603990154	0.80498712824	0.73146665683	0.66474105514	0.60415831768
108	1.51103386038	1.37040848106	1.24383372976	1.12947989757	1.02595610953	0.93212132309	0.84700106590	0.76974420466	0.69959741377
109	1.74926711890	1.58662693450	1.44016417094	1.30780828294	1.18796926811	1.07933589781	0.98078515788	0.89133455576	0.81011363094
110	2.02508682020	1.83697264766	1.66749131588	1.51429654375	1.37556944859	1.24980268170	1.13570177694	1.03213246962	0.93808887375
111	2.34442520885	2.12683345054	1.93070972669	1.75339192270	1.59279799413	1.44719454186	1.31508917977	1.19517227235	1.08628135350
112	2.71415104737	2.46244791885	2.23548693821	2.03024406989	1.84433460032	1.67576453299	1.52281298108	1.38396765509	1.25788504066
113	3.14221748899	2.85103972469	2.58838554080	2.35081599027	2.13559815184	1.94043755112	1.76334946536	1.60258740650	1.45659851037
114	3.63783330217	3.30097320608	2.99700454605	2.72201251658	2.47286348837	2.24691646656	2.04188206046	1.85574311018	1.68670466495
115	4.21166113482	3.82193350673	3.47014308171	3.15182907626	2.86339661622	2.60180502361	2.36441305258	2.14889069725	1.95316305213
116	4.87604708863	4.42513516707	4.01798994254	3.64952395814	3.31561127973	3.01275015594	2.73789295049	2.48834804334	2.26171676889
117	5.64528654865	5.12356366030	4.65234308168	4.22581779124	3.83925026664	3.48860678482	3.17037028749	2.88143114452	2.61901625550
118	6.53593199409	5.93225507724	5.38686377184	4.89312453441	4.44559535506	4.03962865243	3.67116508985	3.33661180798	3.03276264824
119	7.56714942094	6.86861998572	6.23737091294	5.66581895455	5.14771042676	4.67768930308	4.25106975108	3.86370025617	3.51187378117
120	8.76113105405	7.95281844205	7.22218182798	6.56054635781	5.96072298629	5.41653797554	4.92258164158	4.47405658094	4.06667641525