Continuing Care Retirement Communities

An Empirical, Financial, and Legal Analysis

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Chapter Nine

Cash Flow Statements and Case Site Analysis

■ The actuarial pricing methodology developed in the preceding two chapters generated fees that are adequate over the long run for a group of residents. Since present values are used in making this calculation, it is possible, though not likely, that a community could be in actuarial balance and yet have near-term cash flow problems. The third component of the financial valuation methodology, cash flow analysis, is used to determine whether an actuarially adequate pricing policy also meets the community's short-term cash expenditure obligations.

The purpose of this chapter is to explore the cash flow implications over a 20-year period of charging actuarially adequate fees. The cash flow projections are based on the stochastic projection methodology explained in Chapter 6, the fees developed in Chapter 7, and the expense assumptions presented in Appendix C. The chapter also includes the application of actuarial valuation, pricing, and cash flow projection methodologies to the six case studies.

CASH FLOW STATEMENTS

The methodology for developing a cash flow projection is straightforward. It requires that cash sources and uses be estimated annually, with the difference between the two being added to the preceding year's cash balance to generate the next year's balance. This process is repeated for each year of the forecast.

For many organizations, cash flow projections can be made simply by extrapolating current revenues and expenses into the future. In

these cases, management's primary concern is the selection of appropriate assumptions, such as future inflation and interest. Since the future is uncertain, several projections might be made with alternative sets of assumptions.

Cash flow projections for CCRCs also require assumptions for future interest and inflation rates. However, such forecasts are further complicated by the dynamics of future population flows which have a direct impact on revenues and expenses. Thus, management must project apartment turnover and health care utilization as accurately as possible.[1] Since CCRCs are typically small (in numbers of residents), random deviations from the expected experience can also have a significant impact on cash flows, and the effects of such random deviations should be examined in a cash flow projection. Moreover, due to the deferred incidence of expenses (especially health care expenses) for a group of residents, cash flow projections over a short period of time may provide misleading information by showing a community to be cash rich when in reality its long-run financial status is questionable. Therefore, CCRC cash flow projections should be of sufficient length (e.g., 20 years or more) to uncover any hidden deficiencies in the current pricing policy.

Actuarial Cash Flow Projection

Table 9–1 shows a detailed cash flow projection for the hypothetical CCRC that has adopted actuarially adequate fees according to the real estate/actuarial approach.[2] Monthly fees, which are set to cover operating expenses, are assumed to increase *10 percent per year,* while entry fees, which are set to cover capital expenses, have a variable increase rate of from *2.6 percent to 10.0 percent* over the 20 years, with an average rate of increase equal to 5.5 percent. Interest income is derived by assuming a 12 percent return on investments. Operating expenses are assumed to increase at the same rate as monthly fees, or 10 percent. Capital expenditures include a level dollar debt service amount ($1,662,000) plus an amount for capital improvements (equipment replacement and refurbishment expenditures) that increases annually at 10 percent and is initially $270,000.[3]

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[1] See Chapter 6 for a discussion of population projection methodology.

[2] This financial statement differs slightly from the standard CCRC Statement of Changes in Financial Position, which usually begins with the bottom line from the Statement of Revenues and Expenses and Changes in Fund Balance and removes noncash expenditures while incorporating capital expenditures not included in the income statement. The format in Table 9–1 has been chosen for pedagogic purposes and is similar to the income statement presented later.

[3] Admittedly, a new community would not need these expenditures during its early years. However, for convenience, it is assumed that such amounts are spent. In practice, the unused amounts would be reserved for future capital expenditures.

TABLE 9–1

Twenty-Year Projection of Statements of Changes in Financial Position Using Actuarial Fees *($000)*

	Cash sources				Cash uses				
Fiscal year	**Monthly fees = operating revenues***	**Entry fees**	**Interest income**	**Total sources**	**Operating expenses**	**Capital expenditures**	**Total uses**	**Increase (decrease) in working capital**	**End-of-year cash balance**
1983	$ 3,775	$ 0	$1,181	$ 4,956	$ 2,628	$1,932	$ 4,560	$ 396	$11,026†
1984	3,893	704	1,292	5,889	2,891	1,959	4,850	1,039	12,065
1985	4,043	823	1,411	6,277	3,180	1,989	5,169	1,108	13,173
1986	4,217	919	1,535	6,671	3,498	2,022	5,520	1,151	14,324
1987	4,383	1,085	1,667	7,135	3,848	2,058	5,906	1,229	15,553
1988	4,616	1,110	1,794	7,520	4,232	2,098	6,330	1,190	16,743
1989	4,939	1,311	1,944	8,194	4,656	2,141	6,797	1,397	18,140
1990	5,267	1,360	2,095	8,722	5,121	2,189	7,310	1,412	19,552
1991	5,636	1,471	2,255	9,362	5,633	2,242	7,875	1,487	21,039
1992	5,993	1,845	2,447	10,285	6,197	2,299	8,496	1,789	22,828
1993	6,481	1,895	2,644	11,020	6,816	2,363	9,179	1,841	24,669
1994	7,050	2,153	2,874	12,077	7,498	2,433	9,931	2,146	26,815
1995	7,688	1,994	3,090	12,772	8,248	2,510	10,758	2,014	28,829
1996	8,403	2,444	3,362	14,209	9,072	2,595	11,667	2,542	31,371
1997	9,148	2,583	3,653	15,384	9,980	2,688	12,668	2,716	34,087
1998	9,907	2,851	3,970	16,728	10,978	2,790	13,768	2,960	37,047
1999	10,948	3,085	4,333	18,366	12,075	2,904	14,979	3,387	40,434
2000	12,071	3,687	4,787	20,545	13,283	3,027	16,310	4,235	44,669
2001	13,341	3,439	5,242	22,022	14,611	3,162	17,775	4,247	48,916
2002	14,675	3,938	5,778	24,391	16,072	3,314	19,386	5,005	53,921

* These revenues include monthly fees from continuing care contractholders and per diem revenues from outside patients in the health care center.

† Assumed community has $10,630,000 in cash from original financing.

The projection shows for each year the increase in working capital, which is slightly less than $2 million after 10 years and slightly more than $5 million after 20 years. The cash balance increases from $11 million at the start to $54 million after 20 years. This amount, which may appear unduly large, is not an accumulation of profits.[4] The amount will be shown to be necessary to place the community in actuarial balance and represents a portion of the reserves required for future shelter and health care obligations for current residents. In fact, the ratio of the end-of-year cash balance to total sources is a constant 2.2 throughout the projection, indicating an equilibrium cash flow situation. It should be noted that the amount is expressed in terms of inflated dollars, based on a 10 percent inflation rate. In real terms (i.e., adjusting for inflation), the cash balance at the end of the forecast period is somewhat less than it was at the beginning ($8,016,000).

Ratio Analysis under Actuarial Fees

One methodology often used to interpret financial projections is ratio analysis. The ratios are constructed from data contained in an organization's financial statements. They are primarily used for purposes of comparison with ratios from similar organizations in the same industry. Also, they are frequently used in feasibility studies. The ratios include, but are not limited to, the debt service coverage ratio, the cash to annual debt service ratio, and the cash to debt ratio.

Table 9–2 contains three ratios for the hypothetical CCRC projected for 20 years. Normally, a debt service coverage ratio of 1.00 is considered good, since it indicates the relative ease with which a community will be able to meet its debt payments. The actuarial cash flows have excellent ratios, always greater than 1 and increasing to more than 2 within nine years.[5] The cash to annual debt service ratio, which measures the size of the reserves the community has to cover debt, is extremely high, starting in excess of 6 times debt service and increasing to more than 30 times. The third ratio, cash to remaining debt, measures the community's ability to retire the debt, a ratio of 1.00 being excellent. This ratio is achieved by the actuarially priced CCRC within five years.

Based on traditional ratio analysis guidelines, the cash flow projection associated with actuarial fees shows the community to be financially sound. In fact, such guidelines are greatly exceeded, and management might be led to believe that fee reductions are appropriate.

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[4] All examples in this book are based on a 501(c)(3) nonprofit CCRC since 99 percent of all existing CCRCs are so structured.

[5] The ratios in the first years may be somewhat optimistic since an immediate fill-up was assumed for pedagogic purposes; during later years, however, the ratio is fairly realistic for an actuarially priced CCRC.

TABLE 9–2
Ratio Analysis of Actuarially Priced CCRC

Fiscal year	Debt service coverage ratio	Cash to annual debt service ratio*	Cash to debt ratio
1983	1.24	5.63	0.74
1984	1.63	6.26	0.81
1985	1.67	6.93	0.89
1986	1.69	7.62	0.97
1987	1.74	0.36	1.06
1988	1.72	9.07	1.14
1989	1.84	9.91	1.25
1990	1.85	10.76	1.35
1991	1.89	11.66	1.48
1992	2.08	12.74	1.62
1993	2.11	13.84	1.77
1994	2.29	15.13	1.96
1995	2.21	16.35	2.14
1996	2.53	17.88	2.37
1997	2.63	19.51	2.63
1998	2.78	21.29	2.92
1999	3.04	23.33	3.28
2000	3.55	25.88	3.73
2001	3.56	28.43	4.24
2002	4.01	32.44	4.88

* Excludes debt service reserve funds, which equal maximum annual debt service requirement.

However, this is not the case, as will be shown later. The drawback of ratio analyses is that, even though they may be useful for setting minimum standards, they are heavily dependent on a component that remains constant over time (debt service), whereas other elements are increasing for inflation.[6] This results in unusually high ratio values in future years. Therefore, taken alone, ratio analyses can present a misleading picture of the community's financial position.

The authors believe that the appropriate procedure for justifying substantial cash balances is to perform actuarial valuations on projected population censuses. The current cash balance plus any unfunded liability derived by an actuarial valuation is the appropriate size for the community's total cash reserves under the current pricing policy. To illustrate this procedure, actuarial valuations are performed on

[6] The ratios presented in Table 9–2 should not be taken as standards for all actuarially priced CCRCs. The level of debt has a direct impact on these ratios. This example was based on financing that covered slightly more than 50 percent of the total uses of funds. Higher financing percentages would result in lower ratios, but these would still be significantly higher than the guidelines typically used with ratio analysis. The development of ratio guidelines for CCRCs is an important topic for further research.

the beginning-of-year census from a single iteration of the stochastic cash flow model.[7] The results are presented in Table 9–3.

Aggregate assets are given in columns 2 through 5, and aggregate liabilities are given in columns 6 through 8. Liquid assets, which are primarily cash, start at $10 million and increase to slightly less than $40 million after 20 years. Note that the cash balance is $14 million less than the cash balance generated under the expected projection in Table 9–1. This means that, for this iteration, the community is expected to have an unfunded liability. The size of that unfunded liability is given in column 9. The total liquid assets that should be held by the community are given in column 10, which is the sum of columns 2 and 9. At the end of 20 years, the community should hold $52 million.[8]

This methodology confirms that the substantial cash balances that will be generated for an actuarially priced CCRC are needed to offset deferred obligations. By employing annual valuations, management can use the result to justify the need for fee changes to residents. While this technique may be easy to implement for a new community, there may be some difficulties in applying it to an existing CCRC, as discussed in the following section.

ACTUARIAL PRICING METHODOLOGY APPLIED TO CASE STUDIES

This section presents the results of: (1) an application of actuarial valuations to six actual communities, (2) an evaluation of the actuarial adequacy of fees for new entrants to these communities, and (3) the expected cash flow under each community's current pricing policy as well as under the fee modifications suggested by the actuarial valuation analysis. The six communities are different in age and characteristics but *are not* necessarily representative of the CCRC universe. Thus, the observations regarding the results of these communities *are not* necessarily applicable to other communities. Attempts to use the conclusions and recommendations with regard to these communities, or to make inferences from these results that are not explicitly stated by the authors, could lead to serious error. The purpose of this analysis is to illustrate the actuarial methodology for those who wish to conduct similar studies.

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[7] A single iteration is used for purposes of simplicity since the valuation associated with the expected cash flow requires that multiple valuations be performed on each iteration and then averaged. The computer cost of this is quite high, and similar conclusions can be drawn from a single iteration.

[8] This amount is not equal to the expected cash flow of $54 million shown in Table 9–1 due to variances between the expected population demographics and the actual demographics for this iteration.

TABLE 9–3
Summary of Projected Actuarial Valuation Statements *($000)*

Beginning of fiscal year	Liquid assets	AVFA	PVFR	Aggregate assets	Debt	PVFE	Aggregate liabilities	Unfunded liability	Target liquid asset total
1983	$10,630	$20,450	$ 30,571	$ 61,651	$15,000	$ 46,651	$ 61,651	$ 0	$10,630
1984	11,026	20,618	31,231	62,875	14,938	47,634	62,572	(303)	10,723
1985	11,767	20,791	33,510	66,068	14,868	50,947	65,815	(253)	11,514
1986	12,708	20,968	36,480	70,156	14,790	55,580	70,370	214	12,922
1987	14,007	21,148	39,587	74,742	14,703	60,087	74,790	48	14,055
1988	15,051	21,331	42,814	79,196	14,605	64,582	79,187	(9)	15,042
1993	22,257	22,447	66,199	110,903	13,909	96,704	110,613	(290)	21,967
1998	29,687	24,307	105,886	159,880	12,683	152,606	165,289	5,409	35,096
2003	39,600	27,316	172,705	239,621	10,522	241,251	251,773	12,152	51,752

AVFA = Actuarial value of fixed assets.
PVFR = Present value of future revenues.
PVFE = Present value of future expenses.

In an effort not to overburden the reader, the data generated by an actuarial investigation have been summarized in the tables contained in this section. Fee and contract provisions are presented in Table 9–4 for comparative purposes. The descriptions given for each portion of the analysis assume that the reader has a basic understanding of the methodologies explained in Chapters 7 and 8, and only the most important findings are discussed.

Actuarial Valuations of Case Studies

The baseline financial assumptions for each community were based on a review of their historical experience and their most recent financial statements. All financial assumptions are unique to the individual community except for long-term interest and inflation rates, which were selected to maintain consistency among all communities. The long-term inflation rate was assumed to be 8 percent, and the long-term interest rate was assumed to be 10 percent.[9] Aggregate liabilities for all communities include an estimate of the future financial aid requirements equal to 3 percent of the present value of future monthly fees. The present value of revenues associated with outside contributions is not reflected in the valuations since the goal of this analysis is to determine whether current fees are self-supporting (i.e., do not require subsidies).

Baseline valuation results are presented in Table 9–5. The asset section (rows 1 through 4) contains short-term assets, the actuarial value of fixed assets (AVFA), prospective assets, and aggregate (or total) assets. The liability section (rows 5 through 9) contains short-term liabilities, long-term liabilities, prospective liabilities, and aggregate (or total) liabilities. The unfunded liability, which is the difference between aggregate liabilities and aggregate assets, is given in the last row.

Reviewing the first row of this table, one finds considerable variation in the short-term asset values. The newest community, Case 4, has the largest short-term assets value of slightly under $7 million. This large value is expected due to the initial cash inflow associated with entry fees at the initial fill-up. The other communities hold between $2 million and $3 million in short-term assets, except for Case 5, which holds under $1 million. The value for Case 5 is out of line and may be indicative of an actuarial imbalance. Prospective assets as a percentage of aggregate assets (row 3 divided by row 4) range from 50 percent to 65 percent, with the new communities having smaller percentages. Pro-

[9] It should be noted that a 10 percent inflation rate and a 12 percent interest rate were used in the analysis presented in Chapters 7 and 8. Since the differential assumed here is also two percentage points, the results would have been quite similar if the 10 percent/12 percent assumptions had been used.

TABLE 9–4

Fee and Contract Characteristics of Case Studies

Characteristic	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Entry fee range						
Minimum	$20,400	$33,265	$16,500	$33,900	$29,120	$24,950
Maximum	69,000	88,210	53,515	76,900	70,195	68,950
Weighted entry fee*	$36,511	$42,343	$25,023	$54,393	$44,453	$45,822
Monthly fee range						
Minimum	$ 660	$ 626	$ 666	$ 428	$ 426	$ 290
Maximum	1,423	1,460	1,444	1,033	914	720
Weighted monthly fee*	$ 784	$ 724	$ 797	$ 658	$ 519	$ 418
Meals included with standard fees	3	3	3	1	1	0
Death refund provisions included?	Yes	Yes	No	Yes	Yes	No
Period	12 months	3 months	N/A	84 months	84 months	N/A
Withdrawal/refund provisions included?	Yes	Yes	Yes	Yes	Yes	Yes
Period	50 months	50 months	100 months	84 months	84 months	60 months

* The weighted fee is an average of one-person fees weighted by apartment type.

TABLE 9–5
Baseline Actuarial Valuation Statements *($000)*

Valuation component	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
1. Short-term assets	$ 2,552	$ 2,559	$ 2,786	$ 6,911	$ 670	$ 2,128
2. AVFA	12,573	13,251	15,020	18,981	10,624	9,447
3. Prospective assets	28,859	30,759	31,162	31,355	12,176	19,701
4. Aggregate assets	$43,984	$46,569	$48,968	$57,247	$23,470	$31,276
5. Short-term liabilities	$ 1,276	$ 1,168	$ 735	$ 566	$ 2,360	$ 525
6. Long-term liabilities	4,501	4,333	6,217	10,777	7,571	5,147
7. Prospective liabilities	40,552	43,969	34,520	41,678	19,584	26,849
8. Aggregate liabilities	$46,329	$49,470	$41,472	$53,021	$29,515	$32,521
9. Unfunded liability (8 − 4)	$ 2,345	$ 2,901	$(7,496)	$(4,226)	$ 6,045	$ 1,245

spective liabilities, which reflect only expenses for services promised in the continuing care contract, as a percentage of aggregate liabilities (row 7 divided by row 8) are over 80 percent for all the communities that are five years old or older and under 80 percent for the new communities (Cases 4 and 5). Cases 5 and 6 have a relatively small prospective liability since their contracts do not cover three meals per day and their expected health care utilizations are relatively low, thus understating the potential liability.[10]

Four communities have actuarial deficits or unfunded liabilities. The unfunded liabilities for Cases 1, 2, and 6 are fairly modest, ranging from $1 million to $3 million. The unfunded liability in these cases is less than 10 percent of the aggregate assets. Case 5 has an extremely large unfunded liability, slightly more than $6 million. This liability is more than 25 percent of the aggregate assets and will probably be associated with a near-term financial crisis[11] unless the fees are changed drastically, since the deficit is similar to an interest-bearing debt and will grow at 10 percent per year.

Two communities, Cases 3 and 4, show actuarial surpluses (i.e., negative unfunded liabilities). One of the communities is fairly old, and its surplus is partly due to a gain on the valuation of debt which was obtained at a substantially lower interest rate (5 percent) than the valuation interest rate. This may be the case for the valuations of many mature communities, which would make them more likely to be in actuarial balance even if their fees were not derived on an actuarial

[10] Refer to Chapter 5 for a discussion of the derivation of the mortality and morbidity rates for these communities.

[11] A definitive statement cannot be made until the adequacy of new entrants' fees has been examined.

basis. Of course, this hypothesis can only be verified by performing actuarial valuations on a much larger sample of CCRCs.

Table 9–6 presents the ratio of the unfunded liability to aggregate assets for an 11-experiment sensitivity analysis. This experimental de-

TABLE 9–6
Sensitivity Analysis of Variation in Ratio of Unfunded Liability to Aggregate Assets

Experiment		Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
1	Baseline	5.3%	6.2%	(15.3)%	(7.4)%	25.8%	4.0%
2	1% inflation increase	6.4	7.9	(17.1)	(8.7)	27.1	4.1
3	1% inflation decrease	4.4	4.7	(13.3)	(9.6)	24.6	3.9
4	25% mortality increase	(0.2)	0.8	(18.0)	(11.0)	22.3	(0.3)
5	25% mortality decrease	13.0	13.5	(11.6)	(2.3)	31.0	10.3
6	25% morbidity increase	7.8	8.5	(14.5)	(5.9)	27.4	6.3
7	25% morbidity decrease	2.6	3.6	(16.1)	(9.0)	24.0	1.4
8	25% mortality increase and 25% morbidity decrease	(2.3)	(1.4)	(18.6)	(12.3)	20.9	(2.3)
9	25% mortality decrease and 25% morbidity increase	16.1	16.3	(10.6)	(0.3)	33.2	13.3
10	1% inflation decrease, 25% mortality increase, and 25% morbidity decrease	(3.1)	(2.5)	(20.2)	(14.2)	20.1	(2.9)
11	1% inflation increase, 25% mortality decrease, and 25% morbidity increase	17.6	18.5	(7.7)	(1.5)	35.1	13.7

sign reflects changes in the mortality, morbidity, and inflation rates. The best and worst case assumptions are contained in experiments 10 and 11, respectively. Cases 1, 2, and 6 show actuarial surpluses (i.e., negative ratios) under the best case assumptions even though the baseline valuation (experiment 1) generated an actuarial deficit. In no case did the variation in the ratios exceed 12 percentage points. This observation suggests that, even with substantial variations in assumptions, the continuing care concept is relatively stable.

Table 9–7 presents the fee adjustments under four funding methods to eliminate the unfunded liability associated with the baseline valuations. The funding methods are: (1) a one-time percentage increase, (2) an additional percentage increase over 5 years, (3) a flat dollar monthly surcharge for 10 years, and (4) a flat dollar surcharge to freeze the deficit.[12] In order to compare the flat dollar increase methods (3 and 4) with the percentage increase methods (1 and 2), percentage increases are derived for the flat dollar methods based on the weighted one-person monthly fees (refer to Table 9–4). These percentages are given in brackets under their respective flat dollar amounts. In Case 1, for example, the one-time percentage increase is 8.4%,[13] while the per-

[12] These methods are described in detail in Chapter 8.

[13] This percentage is adjusted for expected loss of future revenues associated with the financial aid liability.

TABLE 9–7
Funding Alternatives to Eliminate Baseline Unfunded Liability

Funding method	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
One-time percentage increase	8.4%	10.1%	(24.8%)	(13.9%)	51.2%	6.3%
Additional percentage increase (5 years)	2.2%	2.5%	(7.1%)	(3.7%)	10.7%	1.7%
Flat-dollar monthly surcharge (10 years)*	$77 [9.8%]	$78 [10.8%]	($225) [(28.2%)]	($119) [(18.1%)]	$321 [61.8%]	$30 [7.2%]
Flat-dollar deficit freezing*	$47 [6.0%]	$50 [6.9%]	($140) [(17.6%)]	($75) [(11.4%)]	$199 [38.3%]	$18 [4.3%]

* Values in brackets represent percentage change of single-resident fee for smallest one-bedroom unit.

centage increase of one-bedroom fees under the flat dollar monthly surcharge is initially 9.8 percent. However, this percentage will decrease under the flat dollar method because it remains constant while the underlying monthly fees (i.e., the portion not identified as a surcharge) increase with inflation.

The largest percentage increase is associated with Case 5, which also has the largest unfunded liability and requires a one-time increase of 50 percent in monthly fees to bring the community into actuarial balance. Such an increase is unlikely to be tolerable, as is the alternative of spreading the increase over five years, which would require an additional 10 percent plus the normal inflation increase. Alternative methods must be used to handle the extremely large deficit. This case illustrates the consequences of a small deficit that is left unfunded and allowed to grow. Cases 1, 2, and 6 require minor increases in fees to eliminate the actuarial imbalance if these increases are spread over five years. Monthly fees for Cases 3 and 4 could be reduced by more than 10 percent without jeopardizing the financial health of these communities.

Fee changes should not be based solely on the results of a valuation since it is generally desirable to charge both current and prospective residents the same monthly fees. It is likely that changes in current residents' monthly fees, as suggested by a valuation, will affect the actuarial adequacy of new entrants' fees. A community should examine new entrants' fees to determine whether they will reduce or increase the actuarial deficit and should make simultaneous and equal changes in the monthly fees of current residents and new entrants to eliminate the deficit. The results of such a pricing analysis of new entrants' fees are presented in the following section.

New Entrant Pricing Analysis of Case Studies

New entrant pricing analysis, which represents an actuarial valuation on an expected group of new entrants, determines the financial impact

of that group on the next year's valuation statement. Table 9–8 contains the results of the pricing analysis using each community's current fees. The first row shows the present value of future revenues (PVFR) for an individual entrant weighted by the new entrant's characteristics with regard to age, sex, apartment type, and double occupancy. The PVFR is the sum of the entry fee plus the present value of future monthly fees (PVMF). All of the PVFRs are more than $100,000. The PVFEs, given in the second row, range from $80,000 to $140,000; the larger PVFEs are associated with newer communities, reflecting their higher construction costs. Row 3 shows the excess or deficiency of the PVFR over the PVFE, and row 4 expresses this difference as a percentage. For example, the PVFR for Case 1 is $146,082, and the PVFE is $140,248, which is $5,834, or 4.2 percent, redundant.

All of the communities except Case 5 have redundant new entrant fee structures. The implications for Case 5 are serious; not only is there a deficit for current residents, but new entrants add to this deficit. This is the worst possible situation for a CCRC. Cases 3 and 4 show the best possible situation; these communities have an overall surplus, and new entrants are expected to contribute to this surplus.

A redundant new entrant fee structure implies that each cohort group of entrants will automatically generate funds to help eliminate an unfunded liability. Thus, it may be possible to eliminate an unfunded liability from new entrants' fees only, without having to increase current residents' fees more than the community's inflation experience.[14] An estimate of the expected contribution that will be generated by the current year's entrants is given in row 5 of Table 9–8. The values in this row were determined by multiplying the excess of the PVFR over the PVFE (row 3) by the expected apartment turnover. Cases 2, 3, 4, and 6 all contribute more than $500,000 toward eliminating the unfunded liability, making it extremely tempting to use new entrants to fund deficits. Moreover, this unfunded liability contribution is expected to increase in future years if both entry and monthly fees are increased for inflation.

Although a fee structure may be adequate on a macro level, where all units are combined, specific fees for individual apartments and number of occupants may not be equitable. Actuarial pricing theory can also be applied to determine the equity of fees among specific apartment units and number of occupants. Table 9–9 shows the percentage redundancy (deficiency) for the most prevalent studio, one-bedroom, and two-bedroom units for one and two entrants. This table illustrates that even though fees may be adequate in the aggregate for a weighting of all apartment units, specific apartment units may show deficiencies.

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[14] As was indicated in Chapter 8, this practice is not recommended.

TABLE 9–8

Comparison of the Present Value of Expected Revenues and Expenses for New Entrants in Fiscal Year 1982

Pricing statistics	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
PVFR* for typical entrant†	$146,082	$121,922	$109,502	$163,608	$127,419	$106,840
PVFE for typical entrant	140,248	104,554	98,984	137,417	133,149	82,063
Excess (deficiency) of PVFR over PVFE for typical entrant	$ 5,834	$ 17,368	$ 10,518	$ 26,191	$ (5,730)	$ 24,777
Percentage excess (deficiency) of PVFR over PVFE for typical entrant	4.2%	16.6%	10.6%	19.1%	(4.3%)	30.2%
Excess (deficiency) of PVFR over PVFE for expected group of entrants	$151,684	$503,672	$525,900	$680,966	($63,030)	$619,425

* PVFR = Entry fee plus present value of future monthly fees.

† Typical entrant refers to weighting of values by sex, age, apartment-type distribution, and double-occupancy percentage.

TABLE 9–9
Comparison of Percentage Excess (Deficiency) of PVFR over PVFE for Most Prevalent Apartment Units

Apartment type	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Studio	(5.2)%	13.9%	17.5%	10.4%	(11.2)%	25.6%
One bedroom						
One person	7.8	29.8	27.6	30.2	2.2	42.5
Two persons	(5.7)	11.0	18.9	14.8	(7.3)	17.0
Two bedrooms						
One person	33.2	37.9	(7.3)	29.0	(6.0)	54.7
Two persons	2.8	20.1	(16.2)	15.8	(15.1)	29.2

The new entrant pricing analysis can be used to develop actuarially equitable fee differentials by apartment type and number of occupants. Moving to an actuarially equitable fee structure may require substantial changes in current fees, as indicated in Table 9–9. This table shows that for all cases, second-person fees (in the bedroom units) are inequitable with regard to first-person fees since their percentage excess (or deficiency) is less (or more) than the corresponding single-entrant values.

Cash Flow Projections for Case Studies

The next step in setting fees is to combine the fee changes suggested by the actuarial valuations and the new entrant pricing analysis to develop a consistent fee structure for both groups of residents that will eliminate any unfunded liability. Then the cash flows for this structure should be tested. The following discussion is based on the fee changes recommended on a macro basis (i.e., the percentage increase of all fees disregarding individual unit/occupancy inequities) to eliminate the unfunded liability and compares the 10-year cash flow projection of the recommended fees with the cash flow projection of the current fees. Adjustments to remove inequities among units are not explored in this analysis.

Table 9–10 contains the projected cash balance over the next 10 years where both current monthly and entry fees are increased with the inflation assumption. All of the communities except Case 5 are expected to have reasonable cash balances during the next 10 years. By the end of fiscal 1991, the cash balances for the five financially sound communities range from $15 million to $40 million. These amounts are all probably more than the amount required to be in actuarial balance since the fees of these communities for new entrants are redundant and are expected to generate excess cash. Case 5 is expected to have a

TABLE 9–10
Ten-Year Expected Cash Flow Projection Based on Current Pricing Policies *($000)*

Fiscal year	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
1982	$ 1,422	$ 2,545	$ 652	$ 5,067	$(1,098)	$ 1,243
1983	1,518	3,249	2,797	6,615	(1,669)	1,796
1984	1,864	4,100	4,257	8,635	(1,434)	2,436
1985	2,359	5,178	5,934	11,059	(809)	3,406
1986	3,169	6,509	7,736	13,917	94	4,602
1987	4,311	8,023	9,909	17,586	(3,820)	6,011
1988	6,067	9,772	12,514	22,063	(2,238)	7,741
1989	8,264	11,883	15,657	27,320	316	9,809
1990	11,046	14,072	19,604	33,205	3,674	12,281
1991	14,733	16,747	24,215	40,221	8,031	15,286

negative cash balance in 6 of the 10 years; however, an $8 million balance is expected by the end of 10 years.

In order to eliminate any actuarial imbalance, the information generated from the actuarial valuation was combined with new entrant pricing analysis to develop a set of consistent changes in monthly fees for both current and prospective residents. Table 9–11 presents the suggested changes. These adjustments are assumed to be applied over the next five years. In Case 1, for example, monthly fees are to be increased an additional 1.1 percent over inflation for the next five years, and entry fees are to be raised 1.6 percent less than inflation over the same period. If inflation is assumed to be 8 percent, then monthly fees

TABLE 9–11
Fee Adjustments to Eliminate Unfunded Liabilities

Fee changes	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Percentage increase (decrease) in monthly fees in addition to inflation over next five years	1.1%	0.5%	(1.4%)	(3.7%)	5.3%	0.3%
Percentage increase (decrease) in entry fees in addition to inflation over next five years	(1.6)	(8.0)*	(6.0)	(2.0)	(4.4)†	(7.3)

* The actual derived decrease was 11.6 percent; however, the size of the decrease limited to the inflation assumption, so that the entry fees for any year will not be less than the entry fees for the prior year.

† Even though the community has a substantial deficit with regard to current residents, the mathematically adequate entry fees associated with the increased monthly fees (i.e., 5.3 percent more than inflation over the next five years) are less than the current entry fees. In this example, it was assumed that the deficit would be funded entirely from increases in the fees of current residents, and thus the entry fees were decreased. However, for a community having a deficit of this magnitude, the fees of both current residents and new residents would be used to eliminate the deficit, and a recommendation to decrease entry fees, although mathematically correct, would not be considered a practical alternative.

are to be increased 9.1 percent and entry fees are to be increased 6.4 percent.

The revised cash flow projections using actuarial fee adjustments are presented in Table 9–12. The cash balances at the end of 10 years are

TABLE 9–12
Ten-Year Expected Cash Flow Projection Based on Actuarially Modified Fees *($000)*

Fiscal year	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
1982	$ 1,447	$ 2,567	$ 602	$ 4,909	$(1,049)	$ 1,251
1983	1,602	3,215	2,450	6,113	(1,498)	1,742
1984	2,040	3,911	3,443	7,534	(1,054)	2,243
1985	2,677	4,699	4,382	9,056	(120)	2,947
1986	3,690	5,571	5,132	10,655	1,239	3,745
1987	5,075	6,543	6,075	12,819	(2,149)	4,869
1988	7,107	7,653	7,272	15,509	54	5,869
1989	9,634	8,988	8,795	18,674	3,319	7,290
1990	12,806	10,329	10,830	22,140	7,500	9,006
1991	16,939	11,977	13,259	26,399	12,795	11,106

less than the cash balances using current fees (Table 9–10) for four of the six cases. In each of these cases, each new entrant cohort was expected to generate more than $500,000 in revenues over expenses during its stay in the community, thus placing the community in a surplus position at the end of the projection. Under the actuarial modifications, the reductions in accumulated cash range from 27 to 45 percent. These values should be close to the amounts required to be in actuarial balance; however, additional valuations should be performed to ensure that fee adjustments after five years are on track with the goal of actuarial adequacy.

Cases 1 and 5 generated higher cash balances under the actuarially modified fee structure as compared to their current fee structure. For Case 5, the fees were extremely inadequate and substantial increases were assumed. However, these increases were not enough to eliminate negative cash balances in the early years, and other alternatives (such as a moratorium on its debt payments or reduction in the level of its health care guarantee) would have to be explored in order to solve its financial problem. This case serves as an example of what could go wrong if a community consistently underprices its contract (as was indicated by the new entrant pricing analysis).

Summary

This chapter presented the cash flow associated with an actuarially balanced community. Such a community is expected to accumulate

substantial cash balances, all of which are required to ensure that the community has assets to cover its deferred obligations. Typical ratio analysis will not justify the large cash balances, nor will current GAAP statements, which are the subject of the following two chapters, reflect the community's true actuarial position. The actuarial valuation is the tool required by management to make this justification, as illustrated in the text.

Except for Case 5, the authors found that relatively minor changes were required to bring the communities studied into actuarial balance. This result is significant in two respects. First, achieving an actuarially sound position is relatively easy for these communities, suggesting that communities based on a closed-group pricing methodology can offer marketable fees. Second, since four of the remaining five CCRCs have been in operation for at least five years and are close to being actuarially sound, the continuing care concept seems to be viable, provided that management employs proper financial planning methodologies. Of course, the validity of this statement can only be determined by performing the same financial studies on a number of older CCRCs and monitoring the financial course of those communities over a period of years. ■