Applying ERM and Capital Modeling Principles to the CAS

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Our Presentation Today

- Role of the CAS Risk Management Committee (RMC)
- Special CAS Board Requests of the RMC
    - -Review the CAS Surplus Position
    - -Review the CAS Investment Policy
- Risk Identification & Prioritization Project

RMC Goals & Objectives

Goals:

- **Assist the CAS Board in Managing the Risks and Opportunities Faced by the CAS**
- **Consistent with the evolving role of Corporate Risk Managing Committees, serve as the Risk Management Committee for the CAS**
- **Ensure Key Risks and Opportunities (including the aggregation of risk across several dimensions) are Managed Consistently across the CAS**
- **Embed Risk Identification and Risk Mitigation in the Activities of the CAS and its members (build a risk awareness culture within the CAS)**

RMC Goals & Objectives

Objectives: The Risk Management Committee (RMC) will achieve its goals by:

- **Presenting a report to the Board, at least annually, on key risks and opportunities. The report will include recommendations of priority for action. Initially, every board meeting will have some form of report or comment from the RMC in order to build Board awareness.**
- **Identifying the CAS Officer, committee, task force, etc. responsible for managing each risk. Each responsible party will provide input to the RMC for inclusion in the annual report. The input may take the form of a risk reporting section incorporated into an existing report (e.g., a committee cycle report).**
- **For risks without an established responsible party, recommending an approach for ongoing management of that risk item.**
- **Involve CAS Leadership and Committee Chairs in the identification and assessment of risk through the use of risk surveys, and asking that risk reporting be integrated in Committee Cycle reports.**
- **Performing other related tasks as the Board may assign to it.**

RISK MANAGMENT COMMITTEE REVIEW OF THE CAS SURPLUS POSITION AND INVESTMENT POLICY

CAS SURPLUS ANALYSIS

In March 2009, it was reported to the Board that CAS was approaching the lower end of the approved surplus ratio range of 40% to 60%, primarily due to unrealized losses in marketable securities. Surplus ratio is calculated as surplus divided by annual operating expenses.

In light of this report, the CAS Board asked the Risk Management Committee to consider the following questions:

- Is 40-60% the right surplus range given all of the risks we face?
- What is the purpose of surplus?
- The surplus ratio has been used as a barometer of financial health. Is this the right barometer? Are there other barometers we should be looking at instead of or in addition to?
- Is our asset allocation correct given that we are at the lower end of the range?

PURPOSE OF THE CAS SURPLUS

The 2002 Surplus Report identified the following three purposes for the CAS Surplus.

- Provide a contingency to the CAS in the event of negative financial developments;
- Allow the CAS to respond quickly to emerging issues and make important decisions without having to first identify a funding source; and
- Allow the CAS to implement new services or initiatives without dramatic increases in fees (dues or exams) from year to year.

The RMC discussed the three purposes identified in the 2002 Report and agreed that they are all still valid purposes to hold surplus. The RMC brainstormed situations for which surplus might be accumulated, but most scenarios identified could be categorized into one of the three purposes for surplus already identified, which are very broad.

Negative Financial Developments - Identified

The 2002 Surplus Report identified five possible negative financial development scenarios (contingencies) which included:

- **Declining Number of Students**
- **Inability to Attract Sufficient Volunteers**
- **Legal Liabilities**
- **Cancellation of a CAS Meeting or Seminar**
- **Erosion of Employer Support of CAS Continuing Education Offerings**

The RMC added three more:

- **Absorb Investment Losses**
- **Changes in Other Organizations Credentialing Structures**
- **Membership Erosion**

<u>Negative Financial Developments - Example</u>

Cancellation of a CAS Meeting or Seminar – At any time, the CAS has a number of signed contracts relating to future meetings and seminars. The contracts indicate that CAS is potentially <u>liable for liquidated damages</u> resulting from all unsold rooms and convention space in the event of cancellation. The following table (from the 9/30/2008 Audited Financial Statements) summarizes the maximum potential liability for each of the following years assuming all future meetings and seminars were cancelled in that year:

2009	$1,215,021
2010	748,535
2011	588,504
2012	1,177,009
2013	2,354,019
2014	2,632,581

Should the CAS find it necessary to cancel a meeting or seminar, <u>every effort will be undertaken to mitigate the financial loss due to liquidated damages. It is unlikely however that the liquidated damages will be mitigated to zero,</u> and as such, some risk remains that will need to be funded from surplus.

The following analysis shows the potential impact on CAS Surplus if CAS investable assets were to fall by 12.6%, which is a worst case scenario according to the efficient frontier model developed by the CAS Investment Committee.

Absorb Investment Losses	**Low End**	**High End**
CAS Investments	$ 850,000	$ 850,000
CAS Defined Benefit Pension Plan Assets	375,000	375,000
Negative Financial Developments		
Erosion of Employer Support of CAS Continuing Education Offerings – meeting and seminar attendance will likely decrease by 20-30% as employers cut back. We are assuming that mitigation techniques will be taken to eliminate attrition penalties.	243,161	364,741
Changes in Other Organizations Credentialing Structures – Decrease in equity markets alone should not effect this risk	0	0
Inability to Attract Sufficient Volunteers – It is likely that volunteerism would decrease by about 10-20% as employers cut back	270,000	540,000

Cancellation of a CAS Meeting or Seminar – We may be faced with cancelling one or two meetings during the year	250,000	500,000
Declining Number of Students – Based on past experience, we would not expect a decline in equity markets to adversely impact exam registrations	0	0
Legal Liabilities – Decrease in equity markets alone should not effect this risk	0	0
Membership Erosion - It is perceivable that membership revenue could decline 10-20% through dues waivers, deferrals and drops.	219,429	438,858
Respond Quickly to Emerging Issues	100,000	100,000
Implement New Services or Initiatives Without Immediately Funding Fully	200,000	200,000
Total Potential Impact on CAS Surplus:	$ 2,507,590	$ 3,368,599
Annual Operating Expenses (Projected FY 2009)	$ 8,389,379	$ 8,389,379
Surplus Ratio (Surplus / Annual Operating Expenses)	29.9%	40.2%

The RMC reviewed the most recently available surplus ratios of several similar associations. The results of this review are shown below.

Organization (year)	Current Ratio	Target Range
American Academy (2009)	51%	40-60%
Society of Actuaries (2009)	60%	50-100% (a)
American Society of Pension Professionals and Actuaries	35%	35-50%
American Society of Association Executives (2008)	50%* 48.1%**	50-100% 50-100%
CAS (2009 projected)	39%	40-60%

Notes:

(a) SOA increased target range from 30-50% to 50-100% to plan for significant investments in strategic initiatives.

(b) Median surplus ratio for organizations of similar size to the CAS

(c) Average surplus ratio for organizations of all sizes

Conclusions

Based on the analysis presented above, the Risk Management Committee believes that there is a need for the CAS to maintain a yearly surplus.

While the mathematics of the hypothetical pro-forma case study, which follows, suggests a surplus range of 29% to 40% is adequate, the RMC Subgroup is uncomfortable allowing surplus to drop below 40%. One of the reasons is that the mathematical analysis considers only a single year, when in fact, adverse developments, especially due to adverse market performance may take several years to fully recover. The RMC Subgroup agreed that if surplus exceeds 60%, that specific action should be taken to lower it.

In summary, the recommendation of the RMC Subgroup is no change in the CAS approved surplus range of 40% to 60%.

CAS INVESTMENT POLICY

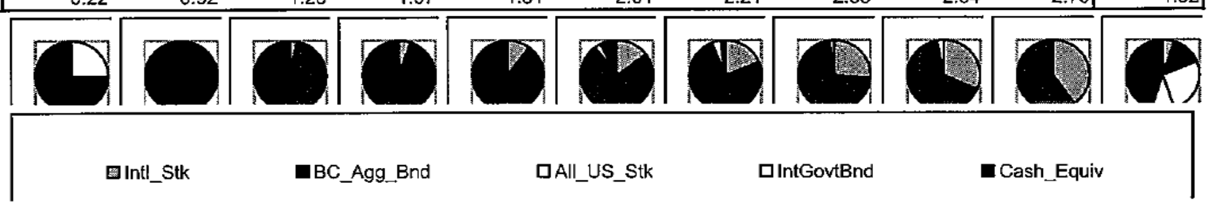
- When considering overall asset allocation, at June 30, 2009 CAS had about 33% of its overall investments and 60% of its surplus invested in equities. These amounts do not seem unreasonable given the size of the investment portfolio and surplus ($6.1 million and $3.5 million).
- In today's interest rate environment, and considering the current CAS asset allocation, the investment in equities is expected to produce an additional annual return of 1.62% over a portfolio with no allocation to equities. For CAS, this additional 1.62% represents approximately $100,000 per year.

Efficient Frontier: Composition of Portfolios

Risk/Reward	Asset Only Asset Efficient Frontier 1 Year Time Horizon — Efficient Portfolios 1	2	3	4	5	6	7	8	9	10	Alternate Portfolios Benchmark
Standard Deviation	0.48	0.98	1.78	2.44	3.16	3.89	4.63	5.44	6.33	7.21	5.05
Nominal Compound Return	0.22	0.92	1.28	1.57	1.81	2.01	2.21	2.38	2.54	2.70	1.52
Reward Percentiles											
Minimum	-1.366	-2.576	-5.272	-7.451	-9.152	-10.620	-12.011	-13.260	-14.702	-16.905	-12.566
10th Percentile	-0.419	-0.382	-1.052	-1.678	-2.458	-3.123	-3.861	-4.633	-5.470	-6.492	-4.868
25th Percentile	-0.109	0.259	0.096	-0.061	-0.358	-0.683	-0.964	-1.440	-1.878	-2.212	-2.002
50th Percentile	0.222	0.938	1.310	1.566	1.730	1.890	1.980	2.064	2.116	2.263	1.385
75th Percentile	0.546	1.597	2.506	3.237	3.975	4.723	5.398	6.157	6.988	7.763	4.947
90th Percentile	0.860	2.196	3.598	4.674	6.101	7.078	8.281	9.547	11.000	11.995	8.046
Maximum	1.683	3.546	6.016	8.058	11.374	15.104	18.638	23.076	27.433	32.140	19.118

Asset Allocations											
Intl_Stk	0.0	1.5	2.7	5.1	10.4	14.8	18.9	26.0	31.8	40.0	5.0
BC_Agg_Bnd	0.0	33.6	58.9	75.0	75.0	75.0	75.0	71.9	65.2	60.0	14.0
All_US_Stk	0.0	0.0	0.0	0.0	1.3	2.6	3.9	2.2	3.0	0.0	26.0
IntGovtBnd	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Cash_Equiv	75.0	64.9	38.5	19.9	13.3	7.6	2.2	0.0	0.0	0.0	45.0

Assets	Asset Only — Efficient Portfolios 1	2	3	4	5	6	7	8	9	10	Alternate Portfol Benchmark
Intl_Stk	0.0	1.5	2.7	5.1	10.4	14.8	18.9	26.0	31.8	40.0	5.0
BC_Agg_Bnd	0.0	33.6	58.9	75.0	75.0	75.0	75.0	71.9	65.2	60.0	14.0
All_US_Stk	0.0	0.0	0.0	0.0	1.3	2.6	3.9	2.2	3.0	0.0	26.0
IntGovtBnd	25.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10.0
Cash_Equiv	75.0	64.9	38.5	19.9	13.3	7.6	2.2	0.0	0.0	0.0	45.0
Risk	0.48	0.98	1.78	2.44	3.16	3.89	4.63	5.44	6.33	7.21	5.05
Reward	0.22	0.92	1.28	1.57	1.81	2.01	2.21	2.38	2.54	2.70	1.52



CAS INVESTMENT POLICY

- The amount of surplus necessary to absorb a 1-in-1,000 worst case loss based on the CAS asset allocation is approximately $850,000. Based on this, the additional $100,000 return expected annually represents a rate of return 11-12%, which is reasonable.
- The Surplus Report concluded that current surplus (lower end of the range) already has money embedded in it to cover this risk. There is no need to generate additional surplus.

Based on the key findings / discussion of the Investment Committee Report, the RMC Subgroup agreed with the Investment Committee's recommendation that <u>NO</u> change be made to the investment policy at this time.