Liquidity Metrics and Constraints

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Setting

- Earlier payout than expected can cause loss due to timing
- Financial environment focuses on economic and fair value estimates, where consideration of net present value estimates make this even more important
- Matching of assets and liabilities influence

Presentation Goals

- Characterize the variability and distribution of future payments
- Compare these estimates to asset portfolio and available investment opportunities
- Uncertainty costs money, whether it be of the ultimate liability or how it is paid out

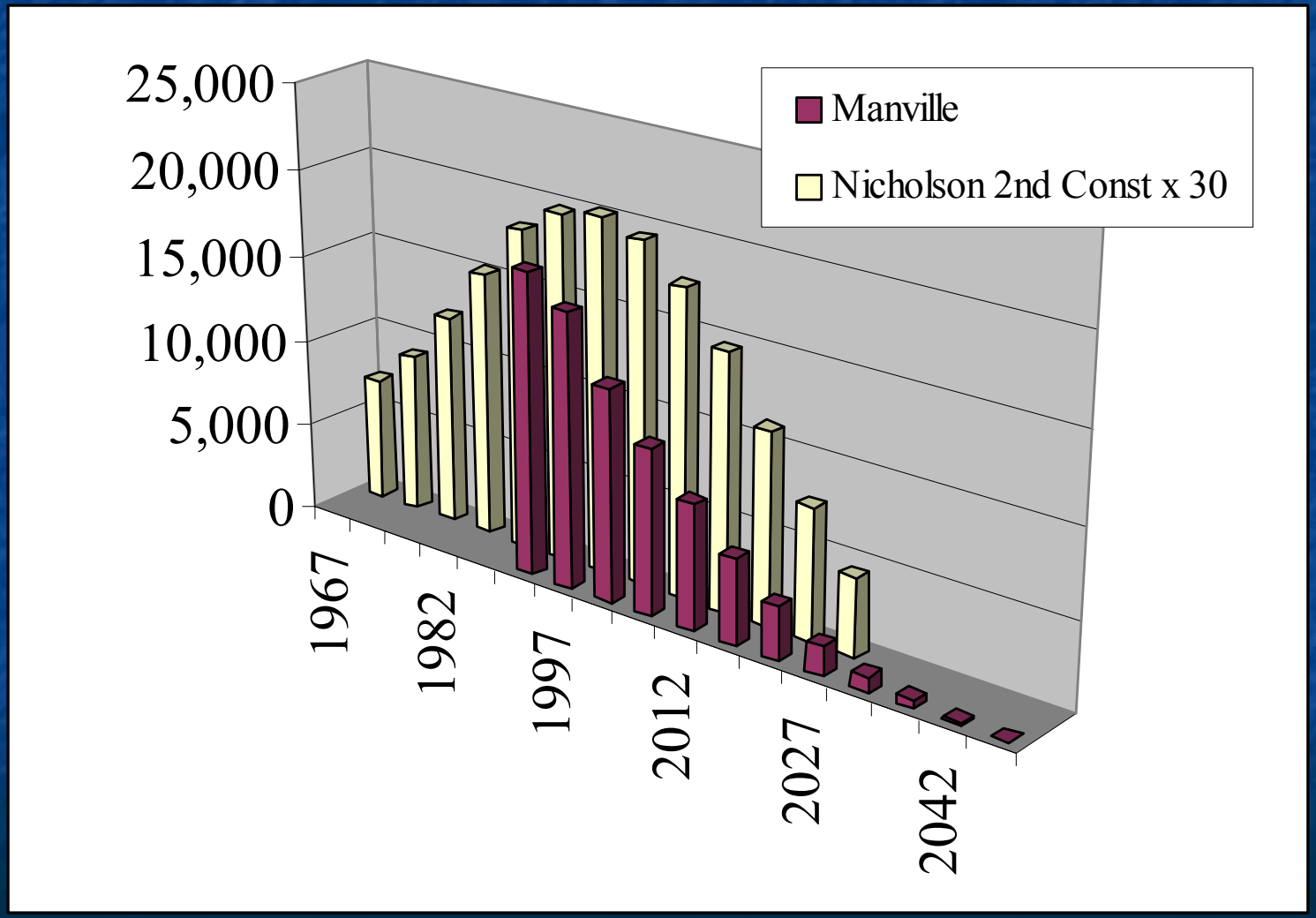
Some Basics

- Will focus on aggregate loss and payment models involving latent claims, with asbestos as the example
- Note: not a goal to present a complete primer on asbestos estimation but will include elements as appropriate to convey concepts

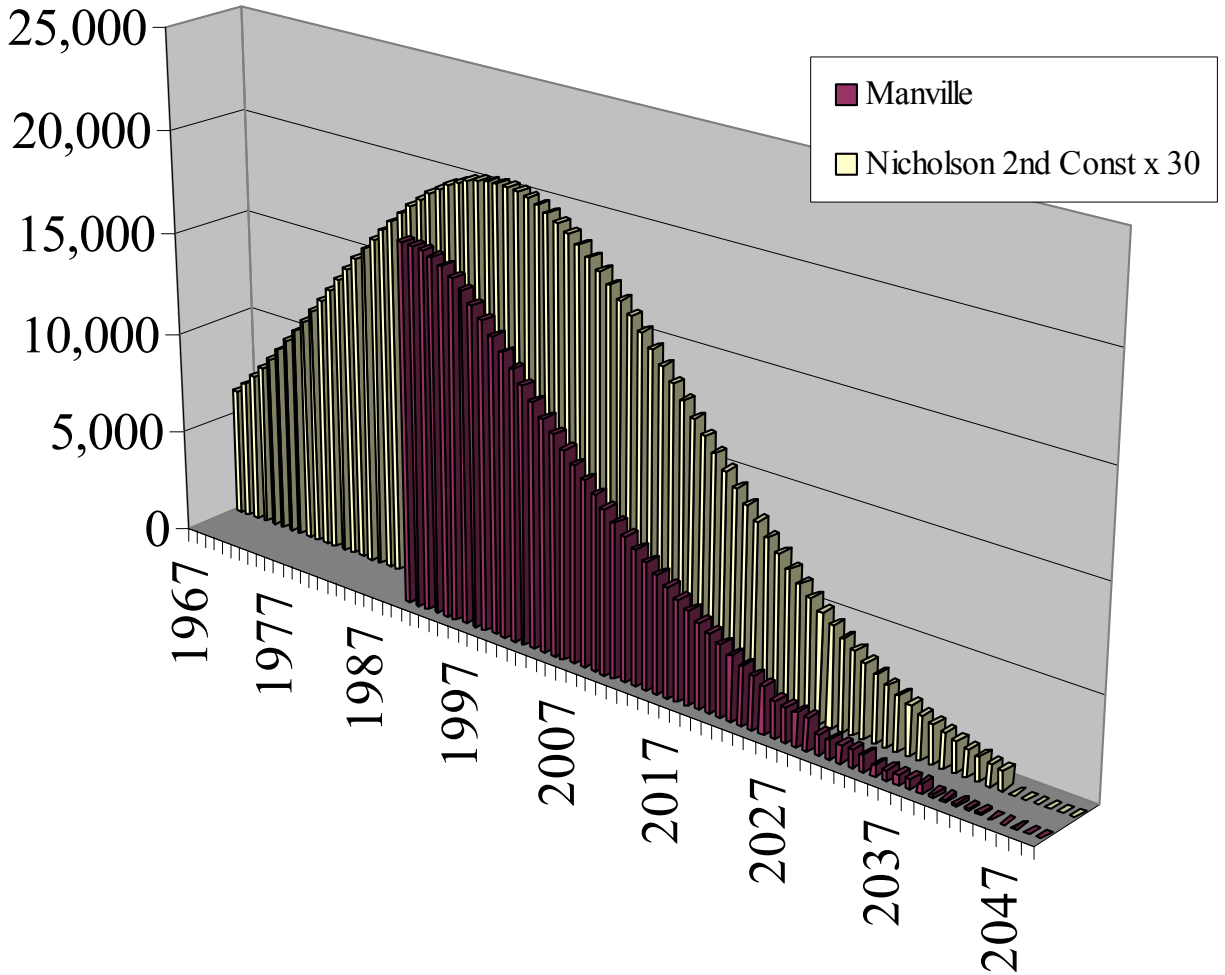
Aggregate Loss Models

- In our example need to consider future claim emergence
- For both future and open (pending) claims, need to project closure pattern and portion that will closed (settle) with payment
- The future paid claims will have a severity associated with them that must also be estimated

Authoritative Sources



Future Claims



Future Closed Claims Payments

- Closure patterns can be translated to a payment pattern in aggregate or by considering paid claim costs when settled
- Report (filing) year statistics can be effectively analyzed for this purpose

Parameter Selection

Asbestos Defendant
All States
All Disease Types, including Unknown
Parameter Selection Analysis for Future Claims and Severity

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Calendar Year	Reported Claims	Ratio-to-Nicholson	Ratio-to-Manville x 100	Closed Claims	CWP	Paid	Average Paid Severity
Prior 1990	6,100	0.6		1,400	900	2,440,000	2,700
1990	2,600	4.0	14.9	600	400	1,207,000	3,000
1991	3,600	5.5	20.6	2,800	900	2,320,000	2,600
1992	6,500	9.8	37.4	2,100	500	1,200,000	2,400
1993	12,800	19.0	74.4	2,300	200	1,020,000	5,100
1994	11,800	17.4	69.8	5,100	1,800	2,269,000	1,300
1995	27,400	40.3	165.8	10,000	3,800	6,584,000	1,700
1996	18,000	26.5	112.1	7,200	3,200	5,097,000	1,600
1997	18,100	26.6	116.6	13,700	3,200	9,078,000	2,800
1998	20,700	30.6	138.4	6,100	4,000	10,413,000	2,600
1999	19,000	28.3	132.4	12,200	6,300	19,672,000	3,100
2000	36,800	55.4	268.0	13,200	10,900	49,321,000	4,500
2001	21,700	33.1	165.6	20,800	19,800	79,654,000	4,000
2002	23,100	35.8	185.1	22,400	19,300	155,984,000	8,100
2003	24,000	37.9	202.3	19,100	13,100	156,658,000	12,000
2004	11,600	18.7	103.1	25,800	12,100	155,280,000	12,800
2005	8,000	13.2	75.0	11,500	7,400	85,538,000	11,600
Total	271,800	13.3	114.7	176,300	107,800	743,735,000	6,900

More Payment Models

- Aggregate payout patterns by report year can be constructed
- May also be possible to estimate aggregate calendar payout from analysis of broader set of data
- Consider not just the payment pattern but also the variability of payments during each annual period

Changing Conditions

- Particularly relevant to asbestos and Medical Malpractice due to Tort Reforms
- Diagnostics and analyses of report year data presented can be applied universally
- Trends of all types

Closing Patterns

Asbestos Defendant
All Disease Types, including Unknown
Close Rate Lag Analysis

Cumulative Claims Closed					
Report Year	1	2	3	4	5
1999	1,700	4,700	6,800	9,700	11,400
2000	1,500	7,900	16,300	22,300	24,200
2001	2,600	5,400	8,300	9,900	11,000
2002	3,200	6,500	9,800	11,100	
2003	2,100	5,600	8,900		
2004	1,900	3,200			
2005	1,000				

Incremental Claims Closed					
Report Year	1	2	3	4	5
1999	1,700	3,000	2,100	2,900	1,700
2000	1,500	6,400	8,400	6,000	1,900
2001	2,600	2,800	2,900	1,600	1,100
2002	3,200	3,300	3,300	1,300	
2003	2,100	3,500	3,300		
2004	1,900	1,300			
2005	1,000				

Closing Patterns Cont'd

Asbestos Defendant
All Disease Types, including Unknown
Close Rate Lag Analysis

Open Claims at Beginning of Period					
Report Year	1	2	3	4	5
1999	19,000	17,300	14,300	12,200	9,300
2000	36,800	35,300	28,900	20,500	14,500
2001	21,700	19,100	16,300	13,400	11,800
2002	23,100	19,900	16,600	13,300	
2003	24,000	21,900	18,400		
2004	11,600	9,700			
2005	8,000				

Closing Rate = (Closed from Lag x to x+1) / (Open Claims @ Lag x)					
Report Year	0-1	1-2	2-3	3-4	4-5
1999	8.9%	17.3%	14.7%	23.8%	18.3%
2000	4.1%	18.1%	29.1%	29.3%	13.1%
2001	12.0%	14.7%	17.8%	11.9%	9.3%
2002	13.9%	16.6%	19.9%	9.8%	
2003	8.8%	16.0%	17.9%		
2004	16.4%	13.4%			
2005	12.5%				
Selected	13.0%	16.0%	18.5%	19.3%	14.0%
=1-Selected	87.0%	84.0%	81.5%	80.7%	86.0%
Inc % of Rept *	13.0%	13.9%	13.5%	11.5%	6.7%
Cuml % of Rept	13.0%	26.9%	40.4%	51.9%	58.6%

Comparing Indications

Asbestos Defendant
All Disease Types, including Unknown
Close Rate Lag Analysis - Report Year Basis

	(1)	(2)	(3)	(4)	(5)=(4)/(1)	(6)	(7)=(6)/(2)
RY	Reported	Closed	CCDF	Ultimate Closed	Percent Closed	CWP	Percent CWP
1990	2,600	2,200	1.009	2,220	85.4%	700	31.8%
1991	3,600	3,300	1.012	3,340	92.8%	600	18.2%
1992	6,500	6,100	1.015	6,192	95.3%	2,300	37.7%
1993	12,800	10,600	1.018	10,792	84.3%	4,000	37.7%
1994	11,800	10,800	1.021	11,025	93.4%	5,800	53.7%
1995	27,400	19,100	1.026	19,604	71.5%	9,000	47.1%
1996	18,000	15,900	1.034	16,439	91.3%	7,200	45.3%
1997	18,100	12,000	1.047	12,561	69.4%	5,300	44.2%
1998	20,700	15,400	1.070	16,477	79.6%	10,500	68.2%
1999	19,000	12,600	1.115	14,046	73.9%	11,000	87.3%
2000	36,800	26,300	1.179	31,007	84.3%	19,300	73.4%
2001	21,700	11,000	1.297	14,262	65.7%	8,900	80.9%
2002	23,100	11,100	1.456	16,166	70.0%	9,700	87.4%
2003	24,000	8,900	1.877	16,708	69.6%	7,400	83.1%
2004	11,600	3,200	2.898	9,273	79.9%	2,800	87.5%
2005	8,000	1,000	6.497	6,497	81.2%	900	90.0%
		Wtd Average:			77.8%		62.2%

Comparing Indications

Asbestos Defendant
All Disease Types, including Unknown
Close Rate Lag Analysis - Closed Year Basis

Closed Year	(1) Closed	(2) CWP	(3)=(2)/(1) Percent CWP
1990	600	400	66.7%
1991	2,800	900	32.1%
1992	2,100	500	23.8%
1993	2,300	200	8.7%
1994	5,100	1,800	35.3%
1995	10,000	3,800	38.0%
1996	7,200	3,200	44.4%
1997	13,700	3,200	23.4%
1998	6,100	4,000	65.6%
1999	12,200	6,300	51.6%
2000	13,200	10,900	82.6%
2001	20,800	19,800	95.2%
2002	22,400	19,300	86.2%
2003	19,100	13,100	68.6%
2004	25,800	12,100	46.9%
2005	11,500	7,400	64.3%
			61.1%

Translating Results

- Constraints can be imposed to be conservative or aggressive, depending on your perspective
- Risk provisions on total payout as well as uncertainty of timing
- Introduction of yield curve the final ingredient

Yield Curves

- Can be recalibrated as often as necessary
- There are no conventional yield curves or their alter ego inverted yield curves
- Of importance is degree of symmetry of yields at a given maturity, or lack thereof

Constraints on Payouts

- Conservative perspective focuses on early payout
- Due to skewness and constraints on how quickly payments can be made, combination of payments and yields may result in expected uncertainty equivalent to locally longer-term effective yields

Expected Values

- Payout patterns focus on estimates of expected payments
- Uncertainty of payments requires closer look at variability of payments during each interval and increment
- Tracking each increment of payout needs care, and gaps might be possible

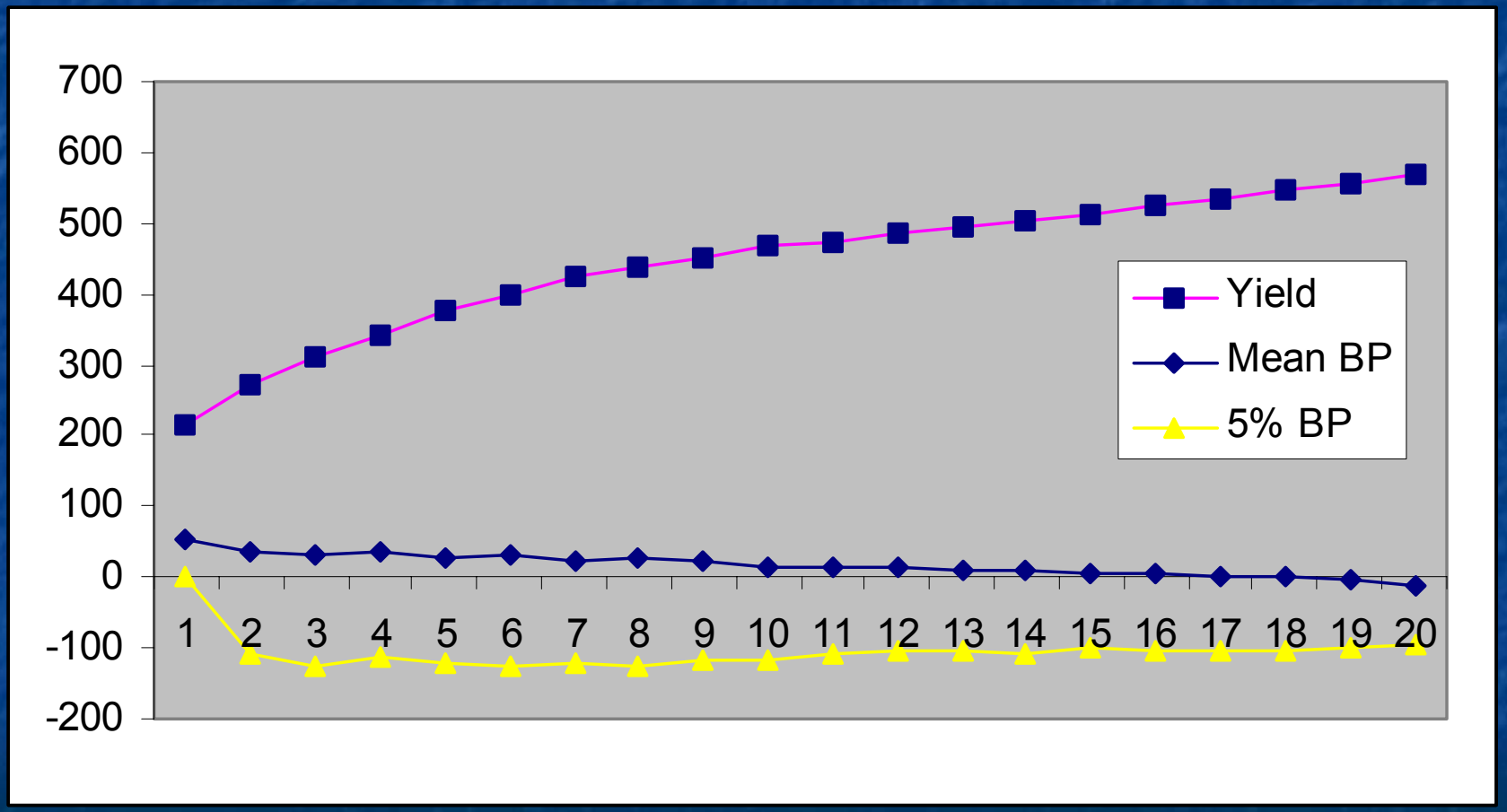
Tracking Payments

Expected Paid: in Yr:		Sample Iteration of Modeled Payments									
		1	2	3	4	5	6	7	8	9	10
613	1	**613**									
1,448	2	836	**612**								
1,991	3		938	**1,053**							
744	4			609	**135**						
1,750	5				1,638	**112**					
1,710	6					1,710	**0**				
1,911	7					64	1,847	**0**			
1,589	8						159	1,430	**0**		
2,897	9							699	2,198	**0**	
2,434	10								62	2,372	**0**

Yields and Uncertainty

Years	Yield	Basis Points of Uncertainty Mean	5% Level
1	2.14%	54	0
2	2.70%	35	-107
3	3.10%	34	-124
4	3.43%	34	-111
5	3.77%	29	-123
6	3.99%	30	-124
7	4.23%	24	-123
8	4.37%	25	-124
9	4.51%	22	-116
10	4.67%	14	-119
11	4.75%	14	-107
12	4.84%	13	-103
13	4.94%	10	-104
14	5.03%	8	-107
15	5.13%	7	-101
16	5.24%	4	-106
17	5.35%	3	-104
18	5.46%	1	-104
19	5.58%	-4	-98
20	5.71%	-12	-96

Yields and Uncertainty



That's What Tiggers Do Best

- Estimating Payment patterns and uncertainty in increments needed
- Aggregate loss models can add significant degree of sophistication
- Local asymmetry of yield curve is a critical element