

Is Percent Funded DOA?

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This presentation addresses **Percent Funded** theory and application.

Full Funding is not the subject of this presentation.

A brief survey precedes the main presentation.

Full audience participation is appreciated.

Is Percent Funded DOA?

Audience Survey

Audience Survey

- Assume that Reserve Studies & Percent Funded are both PERFECT!
- Unless otherwise mentioned, also assume the following:
 1. Zero interest & inflation
 2. Single component study
 3. Component Method “level” funding
example: \$1,000/year contribution for a 5 year, \$5,000 component

Audience Survey

- ◉ Even if you feel that inadequate data is provided, pick best answer.
- ◉ Raise your hand high for best answer.
- ◉ If unsure, answer “Don’t know”.
- ◉ Everyone participate. I’m collecting data.

Audience Survey

- Practice question: Of the 3 following colors, which is your favorite?
 - A. Red, 685.0 nm, 442 THz, #ff0000, 빨간
 - B. Green, 532.5 nm, 566 THz, #00ff00, 녹색
 - C. Blue, 472.5 nm, 637 THz, #0000ff, 파랑
 - D. I'm color blind
 - E. Don't know

Audience Survey

- By what frequency are Percent Funded values listed in your studies?
 - A. By year
 - B. More frequently (by mo, wk, day, etc)
 - C. Less frequently (by decade, etc)
 - D. Not at all
 - E. Don't know

Audience Survey

- Which reserve fund balance do you use to calculate Percent Funded?
 - A. Beginning balance
 - B. Ending balance
 - C. Beginning & Ending balances
 - D. Other balance (mid-year, etc)
 - E. None
 - F. Don't know

Audience Survey

- For a single component study with Component Method “level” funding, which Percent Funded level is necessary?
 - A. Much more than 100% funded
 - B. 100% funded
 - C. Much less than 100% funded
 - D. Don't know

Audience Survey

- Of the following Percent Funded levels, which indicates a need to reduce the current reserve contribution?
 - A. 120%
 - B. 100%
 - C. 80%
 - D. Don't know

Audience Survey

- ◉ Which Percent Funded level is better?
 - A. 70%
 - B. 30%
 - C. Don't know

Audience Survey

○ Does Mike need a haircut?

A. Yes

B. No

C. Don't care

D. Don't know

Is Percent Funded DOA?

Calculations

Age Calculation

$\text{Age} = \text{Useful Life} - \text{Remaining Life}$

Simple FFB Calculation

Component Fully Funded Balance =

$$\text{Age} * \text{Cost} / \text{Useful Life}$$

Total FFB =

Sum of each component's FFB

Percent Funded Calculation

Percent Funded =

$100\% * \text{Reserve Balance} / \text{Total FFB}$

Is Percent Funded DOA?

Where is this coming from?

Where Is This Coming From?

- ◉ Gut Feeling
- ◉ Ongoing Debate
- ◉ Experience
- ◉ Dinner Conversation w/ 15 HOA CPA's
- ◉ Analysis

Is Percent Funded DOA?

Concerns and the Impacted

General Concerns

- ◉ Flawed De Facto Standard
- ◉ Conclusions Defy Common Sense
- ◉ Drives Bad Decisions
- ◉ Inconsistent Results
- ◉ Poorly Implemented
- ◉ Misplaced Emphasis
- ◉ Potentially Legislated
- ◉ No Cautionary Warnings!
- ◉ Ignorance ...

Related

○ Besides Percent Funded, many concerns also relate to:

1. Fully Funded Balance
2. Surplus / (Deficit)
3. Total Current Replacement Cost
4. Total Component Quantity
5. Component Funding Method (slightly)

About these Concerns

- Some concerns presented here may be trivial, philosophical and controversial.
- Some concerns may be specific to software or particular providers including myself, but do not view this presentation as personal attack.
- Some concerns could be remedied through definitions and standards.
- Some concerns are incurable.

Impacted

- ◉ Homeowners, Managers & Boards
- ◉ RS Providers
- ◉ RS Organizations (APRA & CAI)
- ◉ CPA's
- ◉ Sellers, Buyers, Realtors & Lenders
- ◉ Attorneys
- ◉ Insurers
- ◉ Legislators
- ◉ Others ???

Is Percent Funded DOA?

Core Issues

Core Issues

Invalid Conclusions

Poor Implementation

Extraordinary

Components are not “Liabilities”

Is Percent Funded DOA?

Invalid Conclusions

Invalid Conclusions

1. Is one PF level better than another?
2. Does PF dictate contribution growth?
3. What PF is necessary?
4. Is there a Surplus or (Deficit)?

The “Better” Percentage

- Is a Percent Funded level better than another?

Previously you were surveyed as to which Percent Funded level, 70% or 30%, was “better”. If you didn’t answer “Don’t Know”, you were wrong.

How so, you may ask (please do ask)!

The “Better” Percentage

- Consider a \$1M roof component with 30 year life at 2 different times:
 1. One year before replacement
 2. One year after replacement

Contribution Growth

- Does Percent Funded level dictate contribution growth rate?

Previously you were surveyed as to which Percent Funded level, 120%, 100% or 80%, indicated a need to reduce the current contribution. If you didn't answer "Don't Know", you were wrong.

How so, you may ask (please do ask)!

Contribution Growth

- ⦿ Contribution is NOT in the calculation.
- ⦿ PF is not normalized with respect to time.

Necessary Percentage

- What Percent Funded level is necessary?

Previously you were surveyed as to which Percent Funded level, $>100\%$, 100% or $<100\%$, is necessary for a single component study with Component Method “level” funding. If you didn’t answer $<100\%$, you were wrong.

How so, you may ask (please do ask)!

Necessary Percentage

	2016	2017	2018	2019	2020	2021	2022	2023
Beginning Balance	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000
Contribution	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Expenditure			\$ 3,000			\$ 3,000		
Ending Balance	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000

FFB	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000
Beginning PF	100%	100%	100%	100%	100%	100%	100%	100%
Ending PF	200%	150%	33%	200%	150%	33%	200%	150%

Beg Surplus(Deficit)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
End Surplus(Deficit)	\$ 1,000	\$ 1,000	\$(2,000)	\$ 1,000	\$ 1,000	\$(2,000)	\$ 1,000	\$ 1,000

Necessary Percentage

	2016	2017	2018	2019	2020	2021	2022	2023
Beginning Balance	\$ -	\$ 1,000	\$ 2,000	\$ -	\$ 1,000	\$ 2,000	\$ -	\$ 1,000
Contribution	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Expenditure			\$ 3,000			\$ 3,000		
Ending Balance	\$ 1,000	\$ 2,000	\$ -	\$ 1,000	\$ 2,000	\$ -	\$ 1,000	\$ 2,000

	FFB	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000
Beginning PF		0%	50%	67%	0%	50%	67%	0%	50%
Ending PF		100%	100%	0%	100%	100%	0%	100%	100%

Beg Surplus(Deficit)	\$ (1,000)	\$ (1,000)	\$ (1,000)	\$ (1,000)	\$ (1,000)	\$ (1,000)	\$ (1,000)	\$ (1,000)
End Surplus(Deficit)	\$ -	\$ -	\$ (3,000)	\$ -	\$ -	\$ (3,000)	\$ -	\$ -

Necessary Percentage

	2016	2017	2018	2019	2020	2021	2022	2023
Beginning Balance	\$ 300	\$ 1,300	\$ 2,300	\$ 300	\$ 1,300	\$ 2,300	\$ 300	\$ 1,300
Contribution	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
Expenditure			\$ 3,000			\$ 3,000		
Ending Balance	\$ 1,300	\$ 2,300	\$ 300	\$ 1,300	\$ 2,300	\$ 300	\$ 1,300	\$ 2,300

	FFB	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000	\$ 3,000	\$ 1,000	\$ 2,000
Beginning PF		30%	65%	77%	30%	65%	77%	30%	65%
Ending PF		130%	115%	10%	130%	115%	10%	130%	115%

Beg Surplus(Deficit)	\$ (700)	\$ (700)	\$ (700)	\$ (700)	\$ (700)	\$ (700)	\$ (700)	\$ (700)
End Surplus(Deficit)	\$ 300	\$ 300	\$(2,700)	\$ 300	\$ 300	\$(2,700)	\$ 300	\$ 300

Assuming Perfection

- We can't say whether a percentage is better or worse than another.
- We can't determine contribution growth.
- We can't say what percentage is necessary.
- We can't distinguish between surplus and (deficit).

Things aren't Perfect

- So far we've assumed that Reserve Studies and Percent Funded are both utterly PERFECT.

Now let's get real!

Is Percent Funded DOA?

Implementation

Implementation

- At a gut level, we all know that 30 year projections are suspect. Take the 29th year reserve fund balance, does anyone care to estimate that balance's uncertainty?

The answer probably exceeds +/-100%.

Implementation

- Percent Funded implementation is rather loose. Let's consider the following:
 1. Rounding
 2. Estimation uncertainty & propagation
 3. Replacement day
 4. Beginning or Ending fund balance
 5. Remaining Life rules
 6. Interest or non-Interest FFB equation
 7. Existing Vs Future

Rounding

- ⦿ Percent Funded \neq 63.29%
- ⦿ Percent Funded = 63% (more likely 60%)

Uncertainty & Error Propagation

- Precision & Accuracy

- Estimate uncertainty

 - Quantity (+/- %)

 - Useful Life (+/- %)

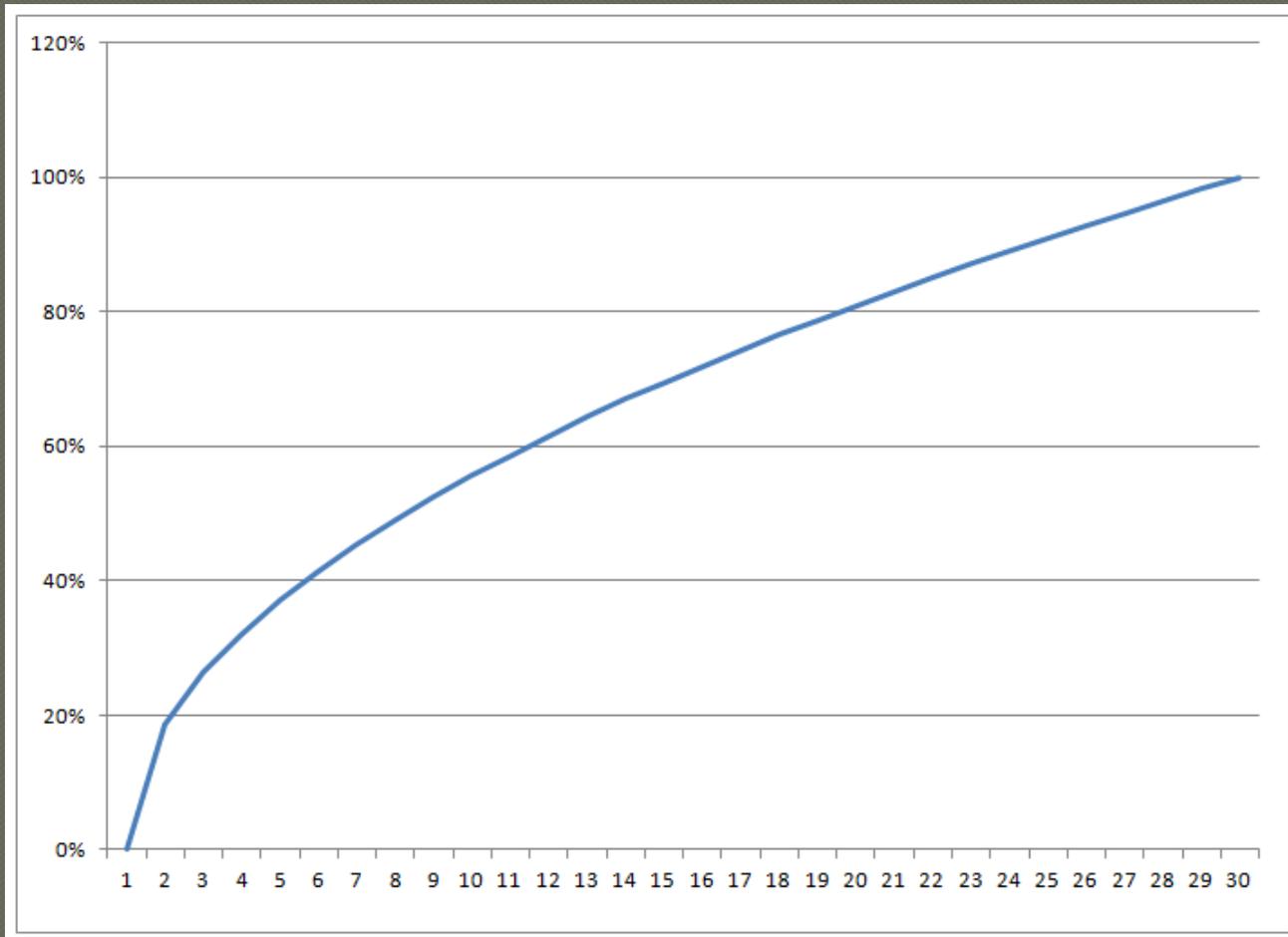
 - Remaining Life (+/- %)

 - Cost (+/- %)

- Error propagation

 - Inflation (+/- %)

Error Propagation



Replacement Day

- FFB is one full year with no beginning, ending or day context.

Beginning or Ending Balance

- ◉ Balance choice yields large differences.
- ◉ Error magnitude relative to Useful Life.
- ◉ Beginning is arguably the better choice.

Remaining Life

1. 0 versus 1 based
2. > 30 years
3. $> UL$
4. Negative
5. Full life or 0 for current year replace

FFB Equation

- Interest or non-interest equation

$$\text{FFB} = \text{Cost} * \text{Age} / \text{UL}$$

$$\text{FFB} = (\text{Cost} * \text{Age} / \text{UL}) * \\ (1 + (1 + \text{Interest Rate})^{-\text{RL}} - \\ (1 + \text{Inflation Rate})^{-\text{RL}})$$

Existing Vs Future

- ⦿ A paradox where the future product or process differs from the existing.

Implementation Recap

- ⦿ Presented with unjustified precision.
- ⦿ Inconsistent balance & equation use.
- ⦿ Non-standard Remaining Life rules.

Is Percent Funded DOA?

Extraordinary

Extraordinary

1. Bank loan
2. Construction defect
3. Insurance recovery
4. Warranty repair

Is Percent Funded DOA?

Components are not Liabilities

Components are not Liabilities

- ◉ Scheduling tool
- ◉ One-time only
- ◉ Duplication
- ◉ Presentation

Component Duplication

E	CBCCDCDE				CF	CG	CH	CI	CJ	CK	CL	CM	CN	CC	CP	CC	CR	CS	CU	CV	CX	CY	CZ	DA	DB	DC	DD	DE		
Street	2016					2017					2018					2019					2020					2021				
	CS	PPE	RPD	TR	Cost	CS	PPE	RPD	TR	Cost	CS	PPE	RPD	TR	Cost	CS	PPE	RPD	TR	Cost	CS	PPE	RPD	TR	Cost	CS	PPE	RPD	TR	Cost
Via Solano	3	0	P3	FT	1,250	0	0	P3	X	0	1	2	P3	I2	26,039	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	2,269
Via Verona	3	0	P3	FT	2,506	0	0	P3	X	0	1	2	P3	I2	52,827	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	4,576
Via Casa Bella	3	0	P3	FT	518	0	0	P3	X	0	1	2	P3	I2	10,437	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	926
Via Casa Bella	3	0	P3	FT	1,329	0	0	P3	X	0	3	2	P3	S	3,585	0	0	P3	X	0	3	0	P3	X	458	0	0	P3	X	0
Via Casa Bella	3	0	P3	FT	966	0	0	P3	X	0	3	2	P3	S	2,607	0	0	P3	X	0	3	0	P3	X	333	0	0	P3	X	0
Via Casa Bella	3	0	P3	FT	966	0	0	P3	X	0	3	2	P3	S	2,607	0	0	P3	X	0	3	0	P3	X	333	0	0	P3	X	0
Via Como	3	0	P3	FT	2,151	0	0	P3	X	0	3	2	P3	S	5,752	0	0	P3	X	0	3	0	P3	X	730	0	0	P3	X	0
Via Fiori	3	0	P3	FT	1,250	0	0	P3	X	0	3	2	P3	S	3,321	0	0	P3	X	0	3	0	P3	X	420	0	0	P3	X	0
Via Mira Monte	3	0	P3	FT	1,250	0	0	P3	X	0	3	2	P3	S	3,321	0	0	P3	X	0	3	0	P3	X	420	0	0	P3	X	0
Via Ponte	3	0	P3	FT	1,250	0	0	P3	X	0	3	2	P3	S	3,321	0	0	P3	X	0	3	0	P3	X	420	0	0	P3	X	0
Via Bianca	3	0	P3	FT	1,904	0	0	P3	X	0	3	2	P3	S	5,086	0	0	P3	X	0	3	0	P3	X	645	0	0	P3	X	0
Parking Areas	1	0	P2	FT	247	0	0	P2	X	0	1	1	P2	S	770	0	0	P2	X	0	1	0	P2	X	29	0	0	P2	X	0
Rue D'Flore	0	0	P3	X	0	2	0	P3	X	260	0	0	P3	X	0	3	0	P3	FT	1,541	0	0	P3	X	0	3	2	P3	S	4,108
Cour St Tropez	0	0	P3	X	0	2	0	P3	X	308	0	0	P3	X	0	3	0	P3	FT	1,819	0	0	P3	X	0	3	2	P3	S	4,856
Cour St Tropez	0	0	P3	X	0	2	0	P3	X	198	0	0	P3	X	0	3	0	P3	FT	1,149	0	0	P3	X	0	3	2	P3	S	3,101
Parking Areas	0	0	P2	X	0	1	0	P2	X	11	0	0	P3	X	0	1	0	P2	FT	91	0	0	P3	X	0	3	2	P2	S	362
Rue D'Azure	0	0	P3	X	0	4	0	P3	X	935	0	0	P3	X	0	4	0	P3	FT	1,855	0	0	P3	X	0	1	2	P3	I2	28,977
Cour St Michelle	0	0	P3	X	0	4	0	P3	X	2,740	0	0	P3	X	0	4	0	P3	FT	5,378	0	0	P3	X	0	1	2	P3	I2	84,836
Rue St Michelle	0	0	P3	X	0	4	0	P3	X	321	0	0	P3	X	0	4	0	P3	FT	657	0	0	P3	X	0	1	2	P3	I2	9,979
Rue St Michelle	0	0	P3	X	0	4	0	P3	X	626	0	0	P3	X	0	4	0	P3	FT	1,222	0	0	P3	X	0	1	2	P3	I2	19,384
Cour St Raphael	0	0	P3	X	0	4	0	P3	X	758	0	0	P3	X	0	4	0	P3	FT	1,510	0	0	P3	X	0	1	2	P3	I2	23,503
Parking Areas	0	0	P2	X	0	1	0	P2	X	5	0	0	P2	X	0	1	0	P2	FT	41	0	0	P2	X	0	0	0	P2	I2	1,138
Coco Pah Ct	3	0	P3	X	266	0	0	P3	X	0	1	2	P3	I2	16,490	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	1,447
Broken Feather Ct	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	2,106	0	0	P3	X	0	0	0	P3	X	0	1	0	P3	X	97
Copper Cloud Dr	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	3,061	0	0	P3	X	0	0	0	P3	X	0	1	0	P3	X	137
Copper Cloud Dr	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	1,992	0	0	P3	X	0	0	0	P3	X	0	1	0	P3	X	93
Copper Cloud Dr	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	2,516	0	0	P3	X	0	0	0	P3	X	0	1	0	P3	X	118
Rainmaker Ct	0	0	P3	X	0	0	0	P3	X	0	0	0	P3	S	1,087	0	0	P3	X	0	0	0	P3	X	0	1	0	P3	X	50

Is Percent Funded DOA?

Recap

Recap

1. Inconsistencies based on both Useful & Remaining Life
2. Beginning or Ending Balance
3. Necessary percentage
4. Surplus or (Deficit)
5. Contribution growth rate
6. Status comparison: Percent Funded, FFB, Surplus/Deficit, Total CRC, Component qty
7. Rounding, estimate uncertainly & error propagation
8. 0 versus 1 based Remaining Life
9. 0 or Full Remaining Life for current year replacement
10. Interest or non-interest FFB equation
11. Replacement day
12. One-time components
13. Remaining Life > Useful Life (delayed start)
14. Remaining Life > 30 years
15. Negative remaining life
16. Existing versus Future component product/process
17. Extraordinary: Bank Loan, Insurance, Construction Defect, Warranty
18. Components are not liabilities
19. Duplication
20. Component Presentation
21. Overemphasizes balance over income flow

An Alternative

- The Percent Funded metric emphasizes balance over income stream.
- A metric immune to PF's pitfalls and able to encompass both balance and income stream is needed.
- Contribution growth rate is a metric that fulfills these requirements.

Contribution Growth Rate

- ◉ Establish a funding goal or goals.
- ◉ Craft Funding Plan.
- ◉ Status based on the highest growth rate. *
- ◉ Adequate less than inflation + 3%.

** subject to constraints*

Contribution Growth Rate

Constraints:

1. Prepared for year contribution growth is not evaluated but must be adopted.
2. Contribution percentage growth rate beyond the prepared for year shall never increase but may decrease.
3. No adopted reserve special assessments beyond prepared for year (multiyear payment plans are acceptable).
4. No reliance on un-adopted reserve special assessments.
5. No reliance on future reserve project loans beyond the prepared for year.
6. No reliance on uncertain extraordinary income such as insurance, construction defect, warranties, etc.

Thank You

Q&A