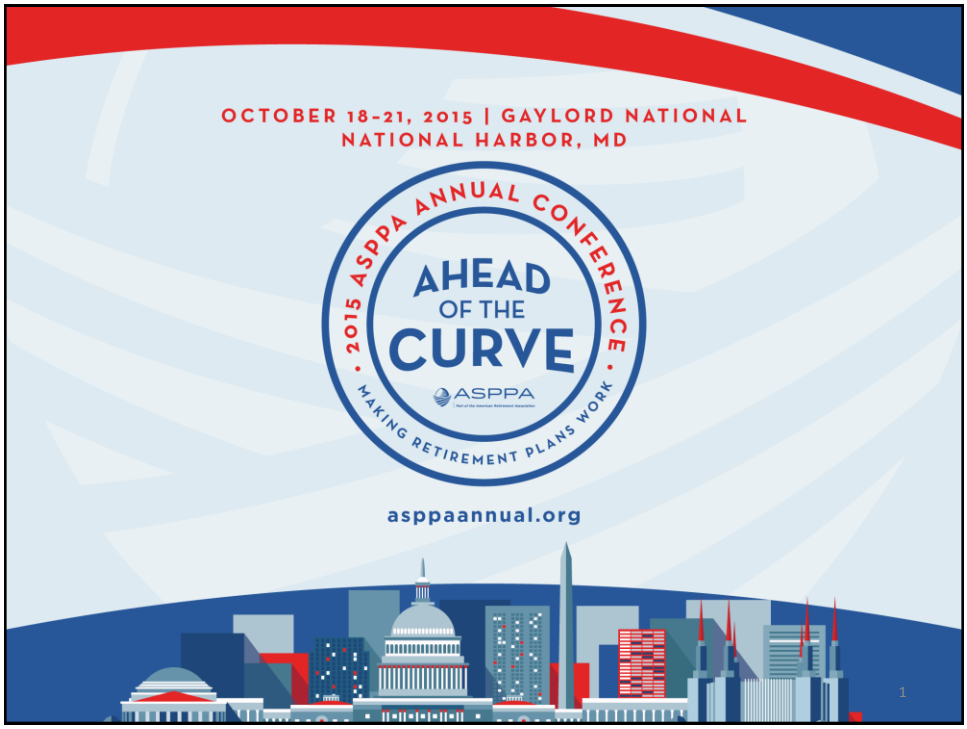

Workshop 57:
Cash Balance Plans in 2015 (Advanced)

Presented by

***Lawrence Deutsch**, FSPA, MAAA, EA, Owner, Penguin Consulting and Design, Ltd, Fallbrook, CA*

***Andrew Ferguson**, FSA, MAAA, EA, Partner, Altman & Cronin Benefit Consultants, LLC, San Francisco, CA*

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Summary

This session is about the influence of various potential interest crediting rates on various operational aspects of a cash balance plan.

Potential Interest crediting rates

- Under current regulations, there are several families of potential interest crediting rates
  - Fixed rates
  - Safe harbor index rates
  - Index rates
  - Equity rates
  - Greater of rates

Summary

- In operation, multiple factors are impacted by the interest crediting rate
  - Plan design
  - EBAR determination
  - Maximum Benefits
  - Maximum Deductions
  - Minimum Required Contributions
  - Accrual Rules

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Plan Design

- For discussion purposes, we assume:
  - Census as on next page
  - Owners want maximum benefit
  - Desire is minimum benefit for NHCEs
  - Owners want to reap benefit of high returns and minimize risk of low return

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Plan Design

- Census

Name	Age	Compensation	Owner
Ed	55	$265,000	Yes
Joan	45	265,000	Yes
Bob	40	40,000	No
Janet	35	30,000	No
Jim	30	25,000	No
Rick	25	20,000	No

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The concerns

- If the interest crediting rate is 5%
  - And the plan only receives a 2% rate of return, the assets will not be sufficient to cover the account balances, which could be a problem for Ed if Joan leaves (or visa versa)
  - Or the plan receives a 20% rate of return, then, when Joan leaves, she feels underpaid

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Impact of interest rate

- Ultimately, the interest crediting rate will be some amount
- If an equity rate, the result for any year could be negative or as high as 20% (or more)
- Before getting into why to pick one rate over another, consider the impact of three rates, 20%, 5% and -5%

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Plan Design

- Plan design is driven by the client's objective, and how best to get to the objective
- In a plan like this, the first issue in the plan design is satisfying 401(a)(26) and 401(a)(4), both of which are driven by EBARs
- To a lesser degree is the issues of contributions being in line with desired levels, and payment of benefits

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EBAR

- There are three types of EBARs in testing, the Normal EBAR (NEBAR) and the Most Valuable EBAR (MVEBAR) and Equivalent Contribution
  - The NEBAR is based upon the 411(a)(7) benefit, as a percent of pay (or percent per year)
  - The MVEBAR is based upon the highest QJSA (payable at any age) as a percent of pay
  - The Equivalent Contribution is based upon the NEBAR expressed as a current lump sum

NEBAR

- The formula for the NEBAR is
  - Accrued Benefit / Compensation / Years of Credit
- Where:
  - Accrued Benefit is the normalized 411(a)(7) benefit
  - Compensation is averaged testing compensation
  - Years of Credit is benefiting years during measurement period

Normalization

- Normalization converts the benefit being tested (the 411(a)(7) benefit, which, by definition, is an annuity payable at NRA) into a life only benefit payable at testing age
- For simplicity, we will assume:
  - Testing age = NRA (normal retirement age)
  - The benefit is payable as a life only annuity

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Normalization

- This means that for the NEBAR, the normalized benefit is the 411(a)(7) benefit
- The 411(a)(7) benefit is the benefit, payable under the terms of the plan, as an annuity at normal retirement age
- For simplicity, we assume an NRA of age 62, and conversion factors based on 5.5% interest, 2015 417(e) mortality

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Testing Compensation

- For simplicity we will assume that the plan uses current compensation as testing compensation

Testing Service

- For simplicity, we will assume the annual method, so testing service is 1

411(a)(7) accrued benefit

- The 411(a)(7) accrued benefit is the benefit payable at NRA (age 62) as annuity
- If the plan has a fixed rate, this is simply the cash balance account projected to age 62 at the plan's interest crediting rate, to get a projected account balance, then converted to an annuity
- If the rate is variable, this is more complicated

Projection Rate

- If the plan uses a variable rate, the plan must contain a rate to project the cash balance account balance to NRA
- Under current guidance, it appear that the current year's interest rate should be used to project to retirement
  - This is contrary to prior published guidance
- We will generally assume the projection rate is the current year's interest rate

EBAR

- Assuming the pay credit is 1% of pay, this would produce an EBAR calculation for Ed (based upon a 5% interest crediting rate) as:
  - Pay Credit = $265,000 X 1% = $2,650
  - Projected account =$2,650*1.05^(62–55)=$3,729
  - Projected benefit = $3,729 / 12.46 = $299.26
  - EBAR = $299.26 / $265,000 / 1 = 0.1129%

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EBAR

- Doing for everyone at various interest rates:

Name	Pay Credit	-5%	5%	20%
Ed	$2,650	0.0803%	0.1129%	0.2876%
Joan	$2,650	0.0803%	0.1840%	1.7806%
Bob	$400	0.0803%	0.2348%	4.4307%
Janet	$300	0.0803%	0.2996%	11.0249%
Jim	$250	0.0803%	0.3824%	27.4335%
Rick	$200	0.0803%	0.4881%	68.2634%

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EBAR

- If the interest crediting rate is less than zero, it is treated as zero
- This is NOT the preservation of capital rule
  - It's the 133-1/3% accrual rule guidance, which states that the projected interest crediting rate can be treated as not less than zero
  - Since accrual rules are based on the accrued benefit, and there is only supposed to be one accrued benefit, we apply the not-less-than-zero to non-discrimination

MVEBAR

- The MVEBAR is the highest normalized QJSA that would be payable at any potential age, based upon the 411(a)(7) benefit
- This involves three steps:
  1. Determine QJSA benefit
  2. Normalize QJSA benefit
  3. Select largest, and convert to MVEBAR

Determine QJSA benefit

- This requires projecting the account to each potential age between the current age and the testing age, and then converting that account, using plan terms, into the immediately payable QJSA benefit
- The participant is assumed to be married
- The spouse is assumed to be the same age
- For simplicity, we will assume a 100% QJSA

Determine QJSA

- For Ed, this means determining the potential benefit at each age from 55 to 62
- At 60, the projected account would be $2,650 * 1.05 ^ 5 = $3,382
- At 60, the QJSA would be $3,382 / 14.63 = $231.15

Determine QJSA

- Repeating for all ages produces

Age	Account	APR	QJSA
55	$2,650	15.55	$170.39
56	2,783	15.38	180.87
57	2,922	15.21	192.11
58	3,068	15.02	204.18
59	3,221	14.83	217.16
60	3,382	14.63	231.15
61	3,551	14.42	246.24
62	3,729	14.20	262.52

Normalize

- The QJSA is normalized by converting to a life only benefit at the testing age of 62
- For example, the age 60 benefit of $231.15 would be normalized by
  - Convert to lump sum as $231.15 * 10.20 = $2,359
  - Project to 62 = $2,359 * 1.085 ^ (62 - 60) = $2,777
  - Normalized benefit = $2,777 / 8.48 = $327.45

Normalize Benefit

- Repeating for all ages produces

Age	QJSA	APR	Lump Sum	Projected	Norm Ben
55	$170.39	10.80	$1,841	$3,258	$384.25
56	180.87	10.70	1,935	3,156	372.22
57	192.11	10.58	2,033	3,057	360.53
58	204.18	10.46	2,137	2,961	349.18
59	217.16	10.34	2,245	2,868	338.15
60	231.15	10.20	2,359	2,777	327.45
61	246.24	10.06	2,478	2,689	317.07
62	262.52	9.92	2,603	2,603	306.99

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Normalize

- The assumptions selected for normalizing were 8.5% and 71 GAM male

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MVEBAR

- The MVEBAR is the highest normalized benefit divided by compensation and service
- Since the highest normalized benefit is the currently payable benefit, the MVEBAR = $384.25 / 265,000 / 1 = 0.1450%
- The highest benefit rate being the current rate is a function of the interest crediting rate (5%) compared to the testing rate (8.5%)

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Highest Benefit

- Repeating at different interest rates produces

Age	-5%	5%	20%
55	$384.25	$384.25	$384.25
56	354.49	372.22	425.39
57	327.01	360.53	470.90
58	301.63	349.18	521.22
59	278.20	338.15	576.88
60	256.57	327.45	638.43
61	236.60	317.07	706.49
62	218.17	306.99	781.74

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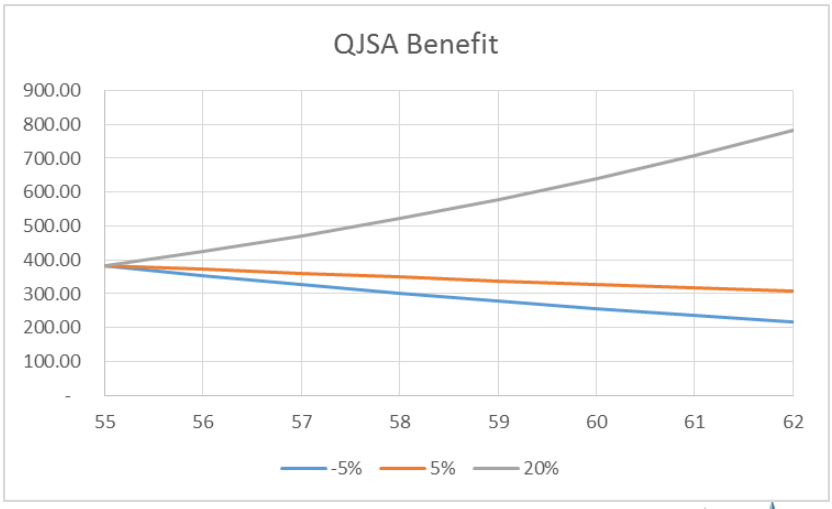
Highest benefit



Highest benefit

- What this shows:
  - If the interest crediting rate is less than the testing rate, the curve is decreasing, so the highest benefit is the current age
  - If the interest crediting rate is lower than the testing rate, the curve is increasing, so the highest benefit is the testing age

MVEBAR

- Repeating this calculation produces

Name	-5%	5%	20%
Ed	0.1450%	0.1450%	0.2950%
Joan	0.3243%	0.3243%	1.8265%
Bob	0.4849%	0.4849%	4.5450%
Janet	0.7250%	0.7250%	11.3095%
Jim	1.0843%	1.0843%	28.1416%
Rick	1.6225%	1.6225%	70.0254%

Equivalent Contribution

- The (normal) equivalent contribution rate is
  - The normalized benefit: $299.26
  - Converted to an age 62 lump sum
    $299.26 * 8.48 = $2,537.75
  - Discounted to present value
    $2,537.75 / 1.085 ^ (62-55) = $1,433.64
  - Divided by Compensation
    $1,433.64 / $265,000 = 0.5410%

Equivalent Contribution Rate

- Repeating for everyone produces

Name	-5%	5%	20%
Ed	0.3845%	0.5410%	1.3776%
Joan	0.1700%	0.3898%	3.7727%
Bob	0.1131%	0.3308%	6.2433%
Janet	0.0752%	0.2808%	10.3316%
Jim	0.0500%	0.2383%	17.0972%
Rick	0.0333%	0.2023%	28.2933%

Plan Design

- 415 Dollar limit = 8% of pay per year (approx)
  - 2015 415 Dollar limit = $21,000 / yr
  - $21,000 / $265,000 = 7.92% of pay
- If Ed's NEBAR is at 7.92%, that means his 411(a)(7) benefit is at the 415 limit
- If Ed's NEBAR is 0.1129% of pay per 1% of pay, the pay credit needs to be:
  7.92% / 0.1129% = 70.17% of pay

Plan Design

- At 70.17% of pay, the pay credit is $185,950
  - $265,000 * 70.17% = $185,950
- This produces an age 62 cash balance account of $185,950 * 1.05 ^ (62-55) = $261,651
- This produces an age 62 benefit of $261,651 / 12.46 = $20,999

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Maximum Benefit

- The 70.17% of pay is fine at 5%, but what happens as -5% and 20%?
- And more importantly, what happens when the rate changes from one year to the next?

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Maximum Benefit

- The maximum lump sum at age 62 is $21,000 * 12.46 = $261,660
- If the rate is -5%, so the projection rate is 0%, this means that a pay credit of $261,660 would project to an account at age 62 of $261,660, so the 411(a)(7) accrued benefit would equal the 415 maximum

Maximum Benefit

- The problem is that the maximum immediate lump sum is much less than $261,660, so while a pay credit of $261,660 would not exceed the projected maximum, it would exceed the current maximum, and thus could not be paid prior to age 62

Maximum Benefit

- Maximum immediate lump sum:
  - Two annuity calculations are performed,
    1. Actuarially equivalent immediate annuity at 5%
    2. Actuarially equivalent immediate annuity at plan rates
  - Maximum immediate annuity = least of the two
  - The result is converted to a lump sum using the lesser of 415 lump sum or plan rates

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Maximum Benefit

- The calculation at 5% is:
  - Lump sum at 62 = $21,000 * 13.05 = $274,050
  - Discounted to current age
    (we assume that the death benefit is such that no pre-retirement mortality is used)
    = $274,050 / 1.05 ^ (62-55) = $194,762
  - Converted back to an annuity
    = $194,762 / 14.93 = $13,045

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Maximum Benefit

- Maximum immediate annuity at plan rates is:
  - Age 62 annuity 415 limit, multiplied by
  - The ratio of:
    - Immediate annuity under the plan, to
    - Age-62 annuity under the plan
  - i.e. the immediate annuity, divided by (in this case) the 411(a)(7) accrued benefit (in both cases, ignoring 415 limits)

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Maximum Benefit

- At plan rates:
  - Immediate annuity = Account Balance / 14.15
  - The age 62 annuity is Account Balance * (1 + projection rate) ^ (62 - 55) / 12.46
  - The ratio (after cancelling the account balance) = 12.46 / (1 + projection rate) ^ (62 - 55) / 14.15
- If the plan rate is 5%, this produces 0.62580
- At -5%, this produces 0.88057
- At 20%, this produces 0.24575

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Maximum Benefit

- At -5%, the maximum immediate annuity is the lesser of $13,045 or $21,000 * 0.88057 = $18,492, for a maximum of $13,045
- At 5%, the maximum immediate annuity is the lesser of $13,045 or $21,000 * 0.62580 = $13,142 for a maximum of $13,045
- At 20%, the maximum immediate annuity is the lesser of $13,045 or $21,000 * 0.24575 = $5,161, for a maximum of $5,161

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Maximum Lump Sum

- Because the plan rate matches the 415 rate, in all three cases the maximum lump sum is the immediate annuity multiplied by 14.15
- This means that the maximum lump sum at either -5% or 5% is $184,587, while at 20% it is $73,024

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Maximum Lump Sum

- This means that a plan could easily be caught in a position where the account balance exceeds the maximum lump
- Three simple solutions are
  1. Don't allow interest crediting rates above a ceiling
  2. Don't push to the full 415 limit
  3. Don't allow distributions when the interest crediting rate is above a certain threshold
- More on this later…

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Funding

- Similar problems can exist for both minimum and maximum funding
- Per IRS regs, for variable rates, the anticipated future interest crediting rate is an assumption
- The benefit accrued for funding and the accrued benefit for other purposes may not be the same

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Maximum Deduction

- Particularly in the first year, the maximum deduction could be less than the contribution credit (!)
- For funding, for simplicity we will assume 100% chance of lump sum with 100% probability of payment at age 62

Maximum Deduction

- Suppose:
  - The fixed interest crediting rate is 2%
  - The second segment rate is 5.5%, and
  - Joan's pay credit is $100,000
- Then:
  - Joan's expected lump sum in 17 years = $100,000 * 1.02 ^ 17 = $140,024
  - Target Normal Cost = $140,024 / 1.055 ^ 17 = $56,352

Maximum Deduction

- Use of the at-risk deduction rule would most likely still allow the pay credit to be deductible

Minimum Contribution

- Suppose:
  - The assumed future interest crediting rate is 7.5%
  - The second segment rate is 6.5%, and
  - Ed's pay credit is $50,000
- Then:
  - Ed's expected lump sum in 7 years = $50,000 * 1.075 ^ 7 = $82,952
  - Target Normal Cost = $82,952 / 1.065 ^ 7 = $53,380

Minimum Contribution

- The minimum contribution ($53,380) exceeds the pay credit ($50,000), and
- Unless plan assets exceed participants' account balances, AFTAP is below 100%
  - Quarterly contribution requirements
  - Funding shortfalls and amortizations

Funding

- Again, a potential resolution is to set a maximum on the interest crediting rate
- A minimum interest crediting rate could also be helpful in certain situations:
  - First year of the plan (if at-risk doesn't provide sufficient deductibility);
  - Re-established plan, where the cushion could be limited or non-existent in second and third years

Back-Loading Accrual

- One way to still credit a higher interest crediting rate, but not have the higher rate be above some fixed rate is to backload the interest crediting
- There are two ways to do this:
  1. Plan amendment
  2. Plan provision

Back-Loading Accrual

- A plan could be amended intermittently to provide an additional interest credit
- Because the higher interest credit is not part of the plan provisions, it would not be part of the accrued benefit
- On the other hand, if there is a pattern of such amendments, then under 411 regulations, it could be deemed to be a part of the plan

Back-Loading Accrual

- Alternatively, the right to a portion of the future interest credit could be conditioned on future employment
- For example, the interest rate could be equal to the actual return reduced by 2%, plus an additional 2%, but the additional 2% is only provided if the participant is still employed

Back-Loading Accrual

- This would make the 2% back-loaded:
  - Right to the 2% is conditioned on future employment
  - The 2% would be considered accrued only when the employment occurs
- Would require testing under 133-1/3 rule

Back-Loading Accrual

- Generally, to test accruals in a cash balance plan
  - The accrued benefit each year is determined
  - The increase each year is determined
  - The increase in each future year can be no more than 133-1/3% of the increase in any prior year (starting in the current year)

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Back-Loading Accrual

- For Rick, this would look like this:
  - 5.00% front-loaded interest credit, and
  - 3.25% back-loaded interest credit

Age	Pay Credit	Base Int	Extra Int	Account	AB	Inc AB
25	$500	$0	$0	$500	$244	
26	500	25	16	1,041	484	$240
27	500	52	34	1,627	720	236
28	500	81	53	2,261	953	233
61	500	4,956	3,221	107,793	9,084	314
62	500	5,390	3,503	117,186	9,405	321

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Back-Loading Accrual

- Because the increase from age 61 to 62 ($321) is more than 133-1/3% of the increase from age 27 to 28 ($233), the plan would fail the 133-1/3 rule
- If the pay credits were increasing, the same method would be used, but reflecting the higher expected future pay credits

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Back-Loading Accrual

- The maximum amount of allowable back-loading of the interest crediting that a plan can tolerate is a function of the participant's age and the base rate
- For example, at age 21, the maximum is about 2.5%, but at age 55, the plan may be able to tolerate as much as 5% or more

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Back-Loading Accrual

- 133-1/3% rule passes only if it passes for all actual and potential ages of participants
  - Age 21 is oldest allowable limit on participation
  - Must design back-loading to be compliant at 21
  - This generally limits to 2.50% back-loading

Back-Loading Accrual

- Consider following interest credit:
  - Active: actual return on assets, capped at 7.0%
  - Termed: actual return on assets minus 2.0%, capped at 5.0%
- Examples:
  - Return is 8.0%: Actives get 7.0%, Terms get 5.0%
  - Return is 5.0%: Actives get 5.0%, Terms get 3.0%

Back-Loading Accrual

- Advantages of this design:
  1. Even though capped at 7.0%, the 415 limit is maximized, because plan rate is treated as 5.0%
     - The 2.0% is not part of the accrued benefit interest crediting, and so future 2.0% credits are ignored in the 415 calculation
  2. Termed participants are encouraged to take distribution

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Plan Design

- So what is best rate to use?

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Fixed Rates

- Under regulations, a plan may use a fixed interest crediting rate up to 6%, but….
- A plan could use a fixed rate as low as 0%
- Under regulations, a plan could use different interest crediting rates for different participants

Fixed Rates

- Generally a 5% rate is optimal for 415 purposes
- A lower rate makes a lower target investment return
- A low rate for NHCEs increases the pay credit needed to satisfy 401(a)(26)
- Could use 5% for NHCEs, and 3% for HCEs

Safe Harbor Index

- Various indexes tied to either government rates or segment rates are available
- The highest rate is the 3rd segment rate for 430 purposes
- Currently, that would allow a rate in the 6% range for several years
- This would allow a higher rate for NHCEs

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Outside Index or Actual Return

- Use of either of these rates could lead to high or low rates in a particular year
- Low rates for NHCEs could cause 401(a)(26) or other testing issues
- Capping the rate (potentially in conjunction with a back-loaded interest credit) could avoid problems with high rates
- If capped at 3rd segment rate, could have any minimum rate

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"Greater of" Rates

- Based upon the rate selected, the plan can include a minimum rate