Summary

Whipsaw is a term that refers to the surprising escalation of a person's termination benefit above their hypothetical account balance. This increase is caused by different interest rates that must be used in different calculations in a Cash Balance Plan.

- See also Cash Balance Plans overview

What is the "Whipsaw Effect" in Cash Balance Plans?

When we were kids, a group of us would hold hands at arms length and run along single file following the leader. Then when the leader made a sharp turn, it was the person on the very end who experienced the "whipsaw effect".

In Cash Balance Plans, the whipsaw effect refers to the "double-whammy" created when different interest rates sharply inflate a participant's lump-sum distribution to a level greater than their hypothetical Cash Balance account.

In a counter-intuitive interpretation by the IRS, the lump sum distribution from a Cash Balance account is not determined simply and directly by the balance in the Cash Balance account. (This balance does, however, serve as a minimum amount for the distribution.) Instead, the Cash Balance account must first be projected to retirement age and converted to a retirement annuity using the interest rate and mortality assumptions stated in the plan (phase 1). Then, to derive the lump-sum distribution, the retirement annuity must be converted back to a lump-sum and discounted to the participant's current age, but at the interest rate and mortality table specified in section 417(e) of the Internal Revenue Code (phase 2). If this latter interest rate is lower than the plan rate, the difference between the Cash Balance account and the lump sum value can be substantial.

(For additional discussion of the whipsaw effect, including a court ruling, follow this link.)

Example 1: 7% interest rate

For example, suppose a participant age 35 has a $10,000 hypothetical Cash Balance and the plan uses annual interest credits of 7%.

1. The projected balance at age 65 is:
   $10,000 \times 1.07^{30} = $76,123 .
2. Converted to a lifetime annuity using 7% interest and the GAR 94 mortality table, this produces a monthly amount of:
   $76,123 \div 120.70880 = $630.63 -- end of phase 1 .
3. Then comes phase 2 in which the 417(e) interest rate and mortality are used. For 2004, this is 5.07% with the GAR 94 mortality table. The annuity produces a lump-sum at age 65 of:
   $630.63 \times 140.69585 = $88,727 .
   This is the first "whammy" increase--17% in this case .
4. Discounted back to age 35 at 5.07% this produces:
   $88,727 \div 1.0507^{30} = $20,123 -- end of phase 2 .
   This is the second "whammy" increase--the resulting lump-sum distribution at age 35 has doubled due to the whipsaw effect imposed by the different interest rates involved.
The following diagram summarizes this example:

Example 2: 417(e) interest rate

Using the 417(e) interest rate for the hypothetical interest credit reduces, but does not eradicate the whipsaw effect. For example, the 417(e) rate for 2002 was 5.48% and fell to 4.92% for 2003. (The mandated mortality table was also changed at this point.)

This means that for a plan using the 417(e) rate, while the lump sum value of participants' benefits on December 31, 2002 may have equaled their Cash Balance account on that date, as of January 1, 2003 the interest rate had fallen 0.56% (and the mortality table had also changed), and their lump sum values were greater than their Cash Balance accounts.

- For ongoing actives this effect may not be apparent: they will receive additional hypothetical Cash Balance account allocations at the end of 2003 which may very well cover the difference in amounts created by the drop in interest rate.
- For participants who terminate in 2003 (without receiving an additional allocation) and receive a lump sum, the whipsaw effect will be seen.

Take a participant age 40 who terminates on December 31, 2002 and receives her final hypothetical allocation on that date. Her Cash Balance account totals $30,000. Based on the 2002 rates, her age 65 annuity is $855.40. This Accrued Benefit cannot be reduced (section 411(d)(6) of the Internal Revenue Code). As of January 1, 2003, the lump sum value of this $855.40 annuity became $36,686, a 22% increase due to the drop in interest rate and mandated change in mortality table.
Solution (almost)

The whipsaw effect does not come into play if:

- the 417(e) rate is above the rate for the hypothetical interest credit
- the plan's hypothetical interest rate does not vary.

It is possible, then, in the plan design to almost eliminate the whipsaw effect by choosing a fixed interest rate that is likely to be less than the 417(e) rate most of the time. In recent years, the 417(e) rate, which is still keyed to the 30-Year Treasury Rates (a deprecated index which will soon have to be replaced), has frequently been below 5% (11 out of 24 months during 2002 to 2003 and at least the first 3 months of 2004) and hit a low of 4.37% in June 2003. (For a complete listing of these rates click here and see the "30-yr TSR" column of this IRS table.)

We do not know what rates will be chosen to replace the 30-Year Treasury Rates, and there is no guarantee that the mandated rate will not dip below any fixed rate chosen, but it is definitely possible to choose a rate that will minimize the probable impact of the whipsaw effect when carefully designing a Cash Balance plan.

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Updated: 10/3/2005
Source: http://AutomatedPensions.com/edu/WhipsawEffect