

MULTIPLE ARCS

Mayur Ankolekar and Nandan Nadkarni demonstrate how higher withdrawal rates in emerging markets can steer pension costs – up, and down as well.

Lump sum entitlements based on last-drawn salary are part of a statutory, employer-financed benefit in many emerging markets like Brazil, Mexico, India, Malaysia and the Philippines. Usually termed as ‘gratuity’, these lump sum employee benefits increase with the length of service, but are punctuated by a vesting period. The vesting period is guided by national labour laws and ranges from 3 to 5 years.

Emerging markets are characterised by high salary growth rates as well as higher withdrawal rates. In this article, we examine how the assumption of higher withdrawal rates can sway an employer’s liability either way. And that the ultimate impact on the liability depends on an interesting interplay of the withdrawal rate with other assumptions. Assumed withdrawal rates – often lesser debated in the pecking order of assumptions for an employer’s defined benefit plan valuation, can make a sizeable difference to the ultimate liability of employers in emerging markets.

Withdrawal rate sways employer liability

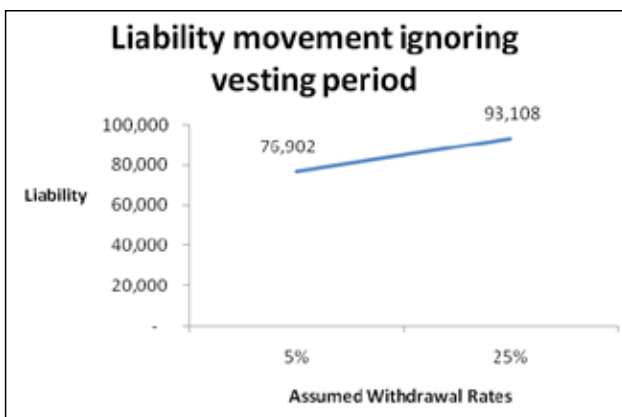
consider a cohort of 30 year-old employees with an aggregate monthly salary of 100,000 currency units and a benefit of ½ month’s salary for every year of service. If the cohort has served 2 years, the discontinuance value i.e. immediate payment to outgoing employees would be 100,000 currency units i.e. ½ x 100,000 x 2.

With salary escalation rate 6%, discount rate 8%, withdrawal rate 5% and standard mortality, the Expected Present Value of the employer’s liability, calculated on principles of endowment assurance albeit with decrements of mortality and withdrawal, is at 76,902 currency units and lesser than the discontinuance value. Note that the discount rate is greater than the salary escalation

rate and thus the net discount rate i.e. discount rate minus salary escalation rate is positive.

Higher withdrawal rates are endemic in emerging markets and seldom in the single digits. If the withdrawal rate assumption moves from 5% to 25%, the employer’s liability increases to 93,108 currency units (see Fig 1). Faced with a higher withdrawal rate, the employer ‘misses the opportunity’ to invest the fund at a rate higher than the expected salary escalation.

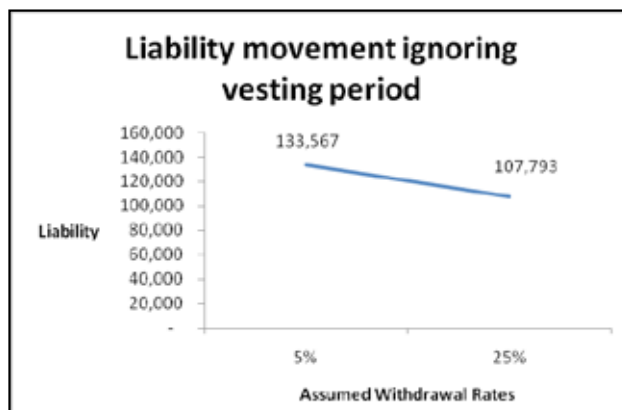
Fig 1: Salary escalation rate lower than discount rate and no vesting period



Now consider that salary escalation changes from 6% to 10% while all other assumptions continue – a real possibility in emerging markets. The Expected Present Value of the employer’s liability stands at 133,567 currency units and 107,793 currency units at withdrawal rates of 5% and 25% respectively (see Fig 2). The net discount rate is negative as salary escalation rate has climbed above the discount rate, so the liability has exceeded the discontinuance value.

Fig 2: Salary escalation rate higher than discount rate and no vesting period

An increase in the withdrawal rate from 5% to 25% reduced the employer’s liability when salary escalation rate exceeded discount rate whilst increased it when the salary escalation



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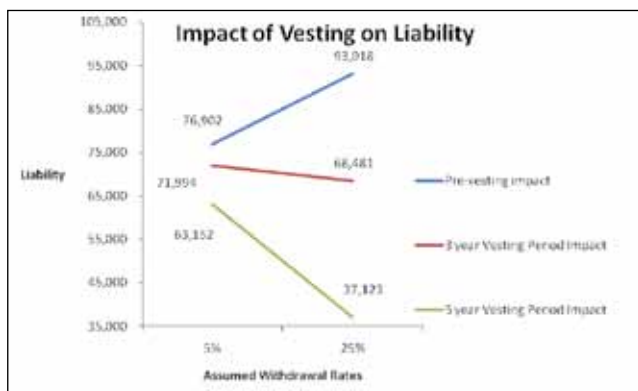
rate trailed the discount rate. Changes in withdrawal rates can sway the employer’s defined benefit liability in either direction.

As employees tend to be more mobile in high-growth emerging markets, employers often face higher withdrawal rate assumptions when compared with developed markets. The change in withdrawal rate assumption can be large and discontinuous between successive years, thus throwing sand in the otherwise smooth gears of the employer’s income statement. And whether the result will be a write back or a charge to the income statement depends on the coupling outcome of the change in withdrawal rate with the net discount rate.

Plunge due to the vesting period

When punctuated with a vesting period, the withdrawal rate parameter reduces the liability. The impact - characterised by a negative gradient, has a different shape that is caused by the net discount rate. When the net discount rate is positive (salary escalation rate lower than discount rate), the gradient is less steep whilst it becomes steeper when the net discount rate is negative. Recall that our cohort has completed 2 years of service. Figs 3 and 4 demonstrate the impact on an employer's liability of vesting periods of 3 years and 5 years.

Fig 3: Salary escalation rate lower than discount rate, 3 and 5 year vesting periods



The effect of the vesting period is more pronounced at 5 years as compared with 3 years. The lower Expected Present Value under a 5-year vesting period is due to the 'longer window effect',

which means that the employee cohort exposed to higher withdrawal has lower probability of earning the benefit over 5 years as compared with 3 years.

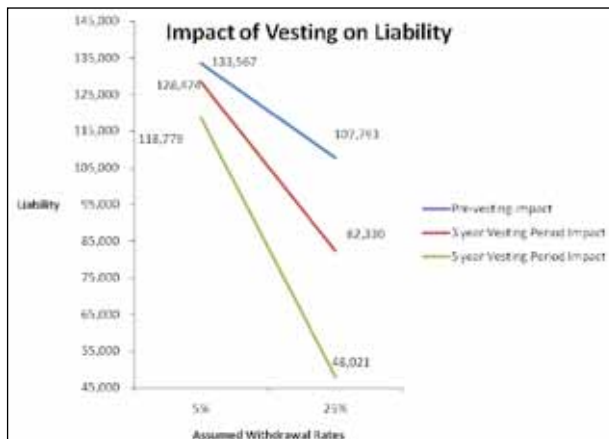


Fig 4: Salary escalation rate higher than discount rate, 3 and 5 year vesting periods

Fig 4 is perhaps typical of emerging markets where employers often experience and hence assume a higher salary escalation rate than the discount rate. An increase in the withdrawal rate will cause the liability to nosedive if the vesting period is longer. Note that we started with a liability that was higher than the discontinuance value of the employee benefit.

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Withdrawal rate's interplay

IAS 19 and accounting standards on employee benefits in most emerging markets cast responsibility on the employer for assumptions of salary escalation and withdrawal rates. Pension actuaries are obligated by professional guidance to advise employers in setting appropriate assumptions.

The withdrawal rate assumption is a tricky one: an increase in withdrawal rate can increase and decrease the liability when the net discount rate is positive and negative respectively.

And when faced with different vesting period conditions, the gradient of liability reduction can plunge, especially in emerging markets which feature a higher employee withdrawal experience. Moreover, as employers tend to fill up positions caused by employee attrition, the withdrawal experience will behave differently than salary escalation and expected investment returns. The pension actuary in an emerging market environment may get to the foreground the sensitivity of the withdrawal rate assumption and its multiple arcs on salary escalation and discount rates.

A colour caricature topical to the article is separately attached.

