MINIMUM ASSURED RETURNS IN DC PENSION SYSTEMS

- A perspective
Sec 20 (2) (e)
There shall not be any implicit or explicit assurance of benefits except market-based guarantee mechanism to be purchased by the subscriber;
Exception:
Sec 20 (2) (b)

- The subscriber, seeking minimum assured returns, shall have an option to invest his funds in such schemes providing minimum assured returns as may be notified by the Authority;
Rationale for Minimum Assured Return Schemes in DC Pension Systems

- Switch from DB systems to DC systems worldwide on account of increasing fiscal burdens on Govts
- DC Systems subject the subscribers to market based returns
- The global economic slowdown of 2008 led to erosion of pension capital in several DC pension systems
- To repose confidence in DC systems, market risk mitigation strategies sought to be formulated— including Minimum Assured Return Schemes (MARS)
Objectives of Guaranteed Return scheme

- Market Risk Mitigation for subscriber

- Setting a floor on the value of the accumulated savings at retirement, either in nominal or real terms

- Increasing coverage due to enhanced subscriber confidence in DC systems
CHARACTERISTICS of ASSURED RETURN

A. DESIGN:

- **FIXED RETURN** – in % terms and hence takes on some features of DB scheme.

- **MINIMUM ASSURED RETURN** – Only Floor is set. Actual returns depends on market. Any shortfall to be made good by sponsor and surplus to be credited to the subscribers account.
eg Belgium (minimum return of 3.75 percent on employees' contributions and 3.25 percent on their own contributions),
- Switzerland (2%),
- Czech republic (0% on nominal terms every year)
- Slovak Republic (zero percent rate of return every six months)
- Germany – Reister plan – 0% on nominal terms every year and Pensionskassen (a type of pension fund) – 2.25%
B. REAL OR NOMINAL

Return in Nominal terms – all examples in previous slide referred to minimum assured return on nominal terms.

Return in real terms – minimum return indexed to inflation to hedge against inflation. No country has adopted this as yet. However, development of Inflation linked bond market may provide the needed fillip to the assured returns on real terms.
c. ABSOLUTE VS RELATIVE

- **ABSOLUTE**: all examples in slide no 8 referred to minimum assured return in absolute terms, without reference to any benchmarks.

- **RELATIVE TO A BENCHMARK**: There are also some countries where pension funds must meet a relative return guarantee, defined in relation to the industry average or some market benchmark, eg..
International examples of relative assured returns

- **In Chile**, pension fund managers must ensure that returns fall within a band that is defined differently depending on the type of fund chosen by the member. For example, the funds with the lower equity exposure (C, D and E) the band is defined as the greater of 2 percentage points below the weighted-average real rate of return over the previous thirty-six months and 50% of the weighted-average real return.

- **In Denmark**, ATP, the operator of a nationwide, mandatory DC plan, must provide a minimum relative return guarantee of member's contributions, reset regularly in line with long-term interest rates.

- **In Hungary**, mandatory pension funds must ensure that the investment return is not less than 1.5 percent less than the yield on Hungarian government bonds.

- **In Poland**, pension fund managers must ensure that returns fall within a band that is defined as the greatest of 4 percentage points below the weighted-average real rate of return over the previous twelve months and 50% of the weighted-average return.

- **In Slovenia**, DC plan providers must meet a minimum return that is defined as 40% of the average annual interest on Slovenian government bonds.
Characteristics of Guaranteed returns

D. ONGOING VS TERMINAL GUARANTEE

- **Ongoing Guarantee:** The guarantee is valid at each point of time (i.e. on an annual basis) eg Czech Republic

- **Terminal Guarantee:** The minimum return guarantee is valid at retirement only. Eg Switzerland, Germany
E. Fixed vs Floating Guarantee

- **Fixed Guarantee** – The Guaranteed return is fixed along the accumulation phase.
- **Floating Guarantee** – The guaranteed rate of return is not fixed along the savings phase. This floating guarantee depends on the development of the 1-year interest rate until retirement. The current 1-year interest rate is assigned to each annual contribution made and is valid until retirement so that, at each point of time, there is a different minimum return. This is similar to the ATP system in Denmark, where most of the contributions (80%) are guaranteed based on the rates the ATP can obtain in the market when contributions are paid.
Costs on assured returns

- Fees by Guarantee provider
- Opportunity cost of the compound loss of not having invested all contributions due to application of fees
METHODS OF CHARGING FEES

- An annual fee paid out of contributions or
- An annual fee paid on accumulated net assets or
- Hair cut on the potential surplus generated.

The potential surplus in one period is defined as the difference between the amount of assets accumulated in the portfolio until that period and the amount of assets that would have been accumulated for the same period in a portfolio with a return equal to the guaranteed level.

TIMINGS OF CHARGING FEES
- On an ongoing basis i.e. annually or
- At the end of accumulation period

CONTINGENT FEES
All these may have
- Option of Fee payable only if surplus generated over and above minimum assured return
The guarantees in which the fee is charged as a haircut on the potential surplus are not implemented yet in any DC pension plan around the world. However, insurance companies and mutual funds already use this approach to charge fees. It may create a strong incentive for the guarantee provider to achieve high returns as he is paid only if the actual return on the portfolio is higher than the guaranteed level, only if the provider and the asset manager coincide in a same entity and they do not hedge that risk. The approach using the final haircut may be difficult to implement in the context of pension plans as the guarantee provider has to wait until the end of the accumulation period before receiving a payment.
Assumptions of financial model

- Interest rate term structure is upward sloping ranging from 3.5% to 5.5%, expected inflation of 2%, (MAY BE HIGHER IN india)
- The equity risk premium is 3%
- The equity volatility is about 20%.
- The lump sum accumulated at retirement is the result of:
  - People contributing 10% of wages each year to their DC plan for forty years,
  - Wages growing from an initial wage of 10,000 currency units by 3.782% on average annually, according to a stochastic inflation rate with median 2% and
  - A career-productivity factor depending on the age of the employee.
- Contributions to DC plans are invested in a life-cycle investment strategy with a constant exposure to equities of 80% between age 25 and 55 that decreases linearly during the last 10 years to 20%.
- The model calculates the lump sum obtained in case of a guarantee and in case of no guarantee. The guarantee implies the payment of a fee, which can be deducted, depending on the structure of the fee, either annually from the accumulated net asset value, annually from the potential surplus, or at the end of the accumulation period from the final potential surplus, using the price determined in the financial market model.
- Retirement, age of 65,
- The assets accumulated are used to buy a fixed life annuity.
## Minimum Return Guarantees

<table>
<thead>
<tr>
<th>Guaranteed level</th>
<th>Capital guarantee</th>
<th>2% guarantee</th>
<th>Inflation-indexed capital guarantee</th>
<th>Ongoing Capital guarantee</th>
<th>Floating guarantee</th>
<th>4% guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Nominal 0%</td>
<td>Nominal 2%</td>
<td>Real 0%</td>
<td>Nominal 0%</td>
<td>1-Year interest rate</td>
<td>Nominal 4%</td>
</tr>
<tr>
<td>Guaranteed applies</td>
<td>At retirement</td>
<td>At retirement</td>
<td>At retirement</td>
<td>Ongoing</td>
<td>At retirement</td>
<td>Fixed</td>
</tr>
<tr>
<td>Fixed Vs floating</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Fixed</td>
<td>Floating</td>
<td>Fixed</td>
</tr>
<tr>
<td>Surplus</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>All</td>
<td>Haircut</td>
</tr>
<tr>
<td>Charge</td>
<td>Annual fee</td>
<td>Annual fee</td>
<td>Annual fee</td>
<td>Annual fee</td>
<td>Annual fee</td>
<td>Annual haircut</td>
</tr>
</tbody>
</table>

### Differences
- **Guaranteed level**: Percentages are nominal and real levels.
- **Guaranteed applies**: At retirement and ongoing guarantees are applied at different times.
- **Fixed Vs floating**: Fixed guarantees are applied consistently, while floating guarantees are variable.
- **Surplus**: All surpluses are affected by haircut.
- **Charge**: Annual fees are charged for all guarantees.
## Cost-Guarantee Matrix

<table>
<thead>
<tr>
<th>% of net asset value</th>
<th>Capital guarantee</th>
<th>2% guarantee</th>
<th>Inflation-indexed capital guarantee</th>
<th>Ongoing capital guarantee</th>
<th>4% guarantee with annual fee</th>
<th>Floating guarantee</th>
<th>4% guarantee with ongoing haircut</th>
<th>4% guarantee with final haircut</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.06%</td>
<td>0.22%</td>
<td>0.24%</td>
<td>0.39%</td>
<td>0.89%</td>
<td>1.22%</td>
<td>–</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>% of contribution</td>
<td>1.24%</td>
<td>4.94%</td>
<td>5.58%</td>
<td>18.36%</td>
<td>18.71%</td>
<td>26.09%</td>
<td>–</td>
<td>–</td>
</tr>
<tr>
<td>% of surplus</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>1.60%</td>
</tr>
<tr>
<td>% of final surplus</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>24.06%</td>
</tr>
</tbody>
</table>
Impact of investment strategies and the length of the contribution period on the price of guarantees

<table>
<thead>
<tr>
<th></th>
<th>% of accumulated net asset value</th>
<th>% of annual surplus</th>
<th>% of final surplus</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Capital guarantee 2% guarantee</td>
<td>Inflation-indexed capital guarantee</td>
<td>Ongoing capital guarantee</td>
</tr>
<tr>
<td><strong>Contribution period: 40 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC 80</td>
<td>0.06%</td>
<td>0.22%</td>
<td>0.24%</td>
</tr>
<tr>
<td>LC 50</td>
<td>0.03%</td>
<td>0.14%</td>
<td>0.15%</td>
</tr>
<tr>
<td>LC 20</td>
<td>0.01%</td>
<td>0.06%</td>
<td>0.07%</td>
</tr>
<tr>
<td><strong>Contribution period: 20 years</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC 80</td>
<td>0.24%</td>
<td>0.89%</td>
<td>0.84%</td>
</tr>
</tbody>
</table>
Guarantee and cases in which the guarantee provides a higher lump sum

<table>
<thead>
<tr>
<th>Guarantee</th>
<th>% cases the guarantee is exercised</th>
<th>% cases better off with the guarantee</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capital guarantee</td>
<td>0.49</td>
<td>0.48</td>
</tr>
<tr>
<td>2% guarantee</td>
<td>5.75</td>
<td>4.78</td>
</tr>
<tr>
<td>Inflation-indexed capital guarantee</td>
<td>6.48</td>
<td>5.22</td>
</tr>
<tr>
<td>Ongoing capital guarantee</td>
<td>83.45</td>
<td>18.2</td>
</tr>
<tr>
<td>4% guarantee with annual fees</td>
<td>35.32</td>
<td>21.26</td>
</tr>
<tr>
<td>Floating guarantee</td>
<td>40.33</td>
<td>21.72</td>
</tr>
<tr>
<td>4% guarantee with ongoing haircut</td>
<td>23.09</td>
<td>21.26</td>
</tr>
<tr>
<td>4% guarantee with final haircut</td>
<td>21.26</td>
<td>21.26</td>
</tr>
</tbody>
</table>
1. Too many choices increase the cost and efficacy of the MAR scheme. The MARS are most effective with fixed characteristics of contribution rate, contribution period, the life-cycle investment strategy is preset and investors cannot switch pension provider. Such a situation may be most relevant for default funds in mandatory DC systems, where individuals are assigned to a given provider, life cycle strategy and contributions are mandatory up to a certain age.
Challenges

2. Ensuring that the guarantor honours its promises, requiring
  - Stipulating of capital and solvency regulations
  - An evaluation of the role of the state vis-à-vis the private sector in meeting what is ultimately a form of catastrophic or “tail-risk” insurance.
If a provider does not know how the contributions will evolve over time, the guarantee price would need to be set for each contribution. The price will therefore increase over time as contributions made closer to retirement are invested over a shorter time period. While administrative feasible (if burdensome) and theoretically fair, such an age-based profile for the guarantee price may be considered discriminatory towards older plan members.
To the extent that members can switch pension provider, the question arises of whether the guarantee can be transferred to the new provider. In order to do so, some form of compensation mechanism between providers would be necessary, where the accumulated value of the guarantee fee paid by the member is transferred to the new provider. However, the unsophisticated subscriber who chooses this product is unlikely to understand this.
An easier solution that could be applied when a plan member switches provider is to cancel the existing guarantee, as in the German Riester pensions. Members however are then exposed to possible losses if there is a shortfall in the market value of the accumulated savings relative to the existing plan’s guaranteed value.

An alternative solution is used in Slovenia, where the guarantee is triggered when the member switches provider. This eliminates the need for a compensation mechanism and ensures protection of the accumulated savings at the original guaranteed value. However, it creates an incentive for members to activate the guarantee at times of negative returns by switching provider. Providers would react to such behaviour by raising the cost of the guarantee, which may become prohibitively expensive. Making the guarantee ongoing (as in the Czech Republic and Slovakia) rather than applicable only at retirement would also solve the portability problem, but as was shown earlier would also raise the cost of the guarantee dramatically.

But does this assume high level of financial literacy??
The return guarantees considered in this paper are also conditional on having a preset investment strategy. This allows the provider to calculate the risk of not achieving the minimum return over the contribution period considered. If members were allowed to switch investment strategy, the cost of the guarantee would automatically change. Furthermore, the new cost would be calculated for a guarantee applied over a shorter contribution period, which would raise it in relation to the original period. Allowing free individual choice in the presence of guarantees also introduces a form of moral hazard, as investors may choose riskier investment options in the knowledge that their downside risk is limited. This moral hazard effect, however, can be controlled by adjusting insurance premia upwards to compensate for the riskier investment strategies. Regulators could also set limits on exposures to riskier asset, such as equities, as is the case in countries such as Chile, Estonia, Mexico and Poland. Life cycle funds in the United States (such as target date funds) also have a predetermined maximum exposure to equities throughout the investment period that is established by the product provider.
To the extent that the provider of the guarantee controls to some extent the investment of the pension fund, the guarantor has a clear incentive to reduce as much as possible investment risk. For instance, in Slovakia when the 0% guarantee was introduced after the financial crisis, the pension fund managers moved to more conservative investment strategies, with higher bond and bank deposit allocations. Part of their equity portfolio was sold, crystallising the losses suffered in 2008. Companies that sponsor DC plans with return guarantees also often control the underlying investments. This is for instance the case of cash balance plans in the United States, which are classified as DB for regulatory and accounting purposes. In the occupational pension systems in Belgium and Switzerland, the pension funds also usually control directly the investment strategy. Investment choice in Switzerland is only available in some pension funds and only for contributions above the required minimum.
, making the guaranteed investment the default option (for those who do not choose any alternative) is also controversial, as on average it would lead to a lower level of retirement income compared to a similar investment with no guarantee.
regulatory issues regarding capital requirements for asset management companies providing capital guarantees need to be addressed, both from a consumer protection and a level playing field angle. Unless a consistent regulatory framework for all commercial providers of capital guarantees is implemented, the security level of products including capital guarantees may decline as a result of regulatory arbitrage.