

Mutual Fund Ratings Capital Protection Oriented Schemes

[In supersession of [earlier](#) 'Mutual Fund Ratings' paper]

Introduction

The Securities & Exchange Board of India (SEBI), in August 2006, released the guidelines for capital protection oriented schemes, facilitating the launch of such schemes by mutual funds for the first time in India. A capital protection oriented scheme (CPOS) aims at protecting the investors from losing their capital in volatile markets while at the same time providing them an opportunity to participate in equity market upturns. CPOS is likely to appeal to risk-averse investors.

The SEBI guidelines defines a CPOS as a mutual fund scheme which is designated as such and which endeavours to protect the capital invested therein through 'orientation of its portfolio structure' and 'not with guaranteed returns' which means that the orientation towards protection of the capital originates from the portfolio structure of the scheme and not from any bank guarantee or insurance cover. These schemes are close-ended.

One of the SEBI regulations require that the portfolio structure of CPOS should be rated by a SEBI registered credit rating agency and the rating should be reviewed on a quarterly basis. The rating should assess the degree of certainty with which the portfolio structure can achieve the objective of capital protection. Rating of a CPOS is an important and useful tool for investors before they take the investment decision. Also, review of the rating on a quarterly basis will benefit the investors who have already invested in a CPOS. CARE's Rating methodology, rating process, surveillance process and key regulations are covered in the **Section I** of this paper.

Principal protection can be implemented using a number of different strategies but all of them use some combination of low risk or risk free assets along with risky assets. Some of the important portfolio strategies which are employed to achieve capital protection include static portfolio protection and constant proportion portfolio insurance (CPPI). These strategies are discussed in **Section II** of this paper.

SECTION I

Rating of CPOS

In light of the above developments, CARE has developed the methodology for rating the structure of capital protection oriented schemes. CARE's rating methodology, for assessing the strength of the portfolio structure, involves a comprehensive analysis of the investment strategy, prevailing market conditions and track record of the management. CARE then estimates the likelihood of a shortfall in the net asset value with respect to the face value of the units of the scheme on maturity. Higher rating is assigned to structures which have a lower likelihood of shortfall of NAV.

CARE will obtain warranties from the asset management company (AMC) defining certain minimum conditions under which the structure will operate to ensure that the rated structure retains its basic characteristics.

Rating Scale

CARE's CPOS ratings are an opinion on the degree of capital protection offered to investors based on the portfolio structure of the scheme. A 'CARE AAAmfs (SO)' rating is an opinion that the structure of the capital protection oriented scheme provides the highest degree of certainty of timely payment of at least the face value of the units to unit holders on maturity of the scheme. The rating is not a recommendation to purchase, sell or hold a security and these ratings do not comment on the volatility of net asset value (NAV) of the scheme or the level of NAV compared to the face value during the tenure of the scheme any time before maturity.

Methodology

CARE's capital protection oriented scheme ratings are opinions on the degree of certainty with which the portfolio structure ensures timely payment of at least the face value of the units to unit holders on maturity of the scheme. CARE's CPOS ratings assess the degree of certainty with which the portfolio structure is capable of achieving the objective of capital protection on maturity of the scheme. Capital protection here means that the NAV should at least be equal to or greater than the face value of the scheme on maturity. A CPOS rating is the rating of a structured obligation and is conditional on the fulfilment and maintenance of certain minimum criteria by the asset management company (AMC).

CARE's methodology for assessing the strength of the portfolio structure, in terms of how well it provides capital protection, involves a comprehensive analysis of the investment strategy adopted by the AMC, the prevailing market conditions (with respect to various instruments that the scheme invests in) and the AMC's track record & past performance. Given these parameters, CARE assesses

the structure of the portfolio under various market scenarios and stressed conditions. CARE then estimates the likelihood of shortfall in the net asset value with respect to the face value of the units of the scheme on maturity. Higher rating is assigned to structures which have a lower likelihood of shortfall in NAV.

Investment Strategy: An AMC can implement portfolio protection using many different strategies including static portfolio protection and CPPI among others. Each strategy exhibits a different risk-return profile depending on the trading rules and the instruments in which it invests. CARE comprehensively analyzes the risks associated with a particular strategy under normal and stress scenarios.

Some of the important characteristics which define a particular strategy are:

- Nature of Strategy: Dynamic or Static
- Rebalancing Frequency (in case of Dynamic strategy) – has an impact on transaction costs
- Equity Component
 - Size: Based on capitalization
 - Sector limits
 - Use of derivatives
 - Use of leverage
- Debt Component
 - Minimum credit quality limits
 - Credit concentration limits
 - Maturity of the securities – the maturity of the instruments needs to be aligned with the maturity of the scheme
- Market Conditions

Once the investment strategy has been determined, CARE examines the prevailing market conditions which are likely to affect the strategy. Market conditions form the constraints under which any portfolio protection strategy has to operate and also form the basis of projecting the future performance of the scheme. Existing market conditions relating to interest rates, instruments available, liquidity, trading volumes and volatility in the bonds, equity, mutual funds and derivatives markets are assessed.

- Macroeconomic Variables
 - Interest rates and related factors like inflation and GDP growth
 - Prevailing regulatory constraints with respect to different institutions and mutual funds
- Debt market

- Liquidity: Availability of instruments of various maturities with desired credit quality
- Transition of credit quality of corporate bonds over time
- Government's borrowing programme which determines the liquidity in the G-sec market
- Equity market
 - Volatility of equity returns on benchmark indices
 - Liquidity conditions prevailing in the market which can be assessed from volumes and impact cost of trading

Determination of the initial debt component

CARE analyses the indicative portfolio for the minimum debt proportion of the scheme that is required to ensure capital protection on maturity of the scheme. The debt levels depend on the expected yield on the debt securities. CARE assesses the following risk factors during its analysis the scheme for its CPOS ratings.

Credit Risk

Credit risk of the debt component comprises the risk of default and the risk of downgrade of the debt securities. Hence, the estimated default rates and rating transition are both important inputs in determining credit quality of the debt component.

The extant SEBI guidelines do not allow CPOS to invest in debt instruments having credit rating of below 'AAA' which indicate highest degree of safety; as a result, the schemes invest in securities having the highest credit rating (including securities issued by Government of India).

CARE uses the portfolio approach to evaluate the level of credit risk. In CARE's credit scoring matrix, a credit score is assigned to each rating category. The score is essentially a function of the credit quality/rating of the security and its residual maturity. CARE's credit scores are arrived at using historical data on defaults adjusted for data limitations. Credit score is lower for higher rating categories and vice versa. The credit score of a rating category is weighted by the proportion of exposure to that rating category. The aggregate of such scores (i.e. the fund credit score) reflects the credit quality rating of the fund. If the investment strategy stipulates a minimum credit quality for the debt component, rating downgrade of individual securities might lower the credit quality of the portfolio. The AMC then has to rebalance the portfolio, which may aggravate the element of market risk.

Reinvestment Risk

Reinvestment risk refers to the risk that interim cash flows (coupons) received from the debt component may get reinvested at lower than the original yield. CARE analyses the reinvestment risk

after stressing the prevailing yield curve under various scenarios assuming that the inflows are reinvested at a very low interest rate. The expected impact of reinvestment risk needs to be adequately covered by allocation to debt component.

Market Risk

Market risk is the risk of a fall in the market value of portfolio due to change in underlying market factors like equity prices, interest rates, exchange rates, inflation, etc. Market risk for the debt component can affect the portfolio if maturity of the debt instruments cannot be aligned with maturity of the scheme due to non-availability of instruments. However, for static strategies, the debt component is generally managed passively, whereby the debt instruments are held till maturity and portfolio churn only happens in case of deterioration in credit quality of the paper.

Liquidity / Marketability Risk

Liquidity/Marketability risk refers to the difficulty of selling or buying an investment. Some debt instruments are not actively traded in the secondary market and may be difficult to offload and are characterized by a wider bid-ask spread. In the equity market some stocks are thinly traded and may entail high impact cost at the time of selling. For dynamic strategies, this risk becomes critical and is factored in the rating. For all the strategies, redemption management at the time of maturity of the scheme is also analysed under marketability risk.

Gap Risk / Crash Risk:

Gap risk refers to the occurrence of a situation called a gap event, where portfolio value falls below the floor and capital protection is violated. A gap event may occur due to credit risk, reinvestment risk, market risk or liquidity risk (explained below) which need to be evaluated in context of the gap risk. Value of the gearing factor (multiplier) in CPPI strategy needs to be determined only after thoroughly projecting the gap risk factors:

1. Volatility of the equity component - a sudden fall in its value can bring the structure close to the gap event
2. Simultaneous liquidity in debt and equity markets - Availability of debt instruments and marketability of the equity at time of crash in prices determines the structure's ability to transfer securities just before the gap event. These risks can be mitigated to some extent by limiting the size of the multiplier and carefully monitoring the volatility of the equity component and credit risk of the debt component.

Float Risk

Float risk considers the opportunity costs, if funds are not deployed in a timely manner. Delayed deployment of funds may lead to investments being done at lower interest rates than originally planned.

Structured Obligation

CARE's CPOS ratings are based upon fulfilment of certain minimum conditions by the AMC under which the scheme will operate. The AMC needs to ensure that these minimum conditions are met at all times during the life of the scheme, as a violation of any of these conditions may adversely affect the structure of the scheme and the rating. Suitable warranties from the AMC are taken while awarding the rating. These conditions relate to:

- Asset allocation -Ensuring a certain proportion of investment in the debt component depending on the investment strategy.
- Screening Rules -A predefined universe of instruments in which the fund can invest, based on their credit quality, volatility, liquidity, etc.
- Adherence to the basic investment strategy.
- Conditions to be fulfilled at the time of maturity to ensure adequate liquidity at redemption.
- Rebalancing frequency in case of dynamic strategies which define the time intervals after which asset allocation will be matched with the investment strategy (Weekly, Fortnightly, Monthly, Quarterly etc.).
- Any other condition that CARE deems necessary for strength of the portfolio structure.

Rating Process

Initial Rating

The CPS rating is mandate driven. Once the mandate is received by CARE from the AMC, request for information is sent to the client. Based on the structure of the scheme and analysis of information and inputs received after meeting with the fund managers, CARE arrives at a provisional rating, which is based on the fulfilment of certain conditions by the AMC. Once the scheme has received regulatory clearance and all the necessary warranties are furnished by the AMC, CARE will provide a final rating to the scheme. CARE reserves the right to suspend, withdraw, revise or reaffirm the rating at any time based on any new event or information or on unavailability of information or any other circumstances, which CARE believes may have impact on the rating. CARE shall also be entitled to publicise/ disseminate such suspension/withdrawal/revision/reaffirmation of the rating in any manner considered appropriate by CARE.

Surveillance of Rating

SEBI has stipulated a quarterly review of the rating of a CPOS, although the review may be undertaken at more frequent intervals. CARE's surveillance process for CPOS rating will involve the following:

- CARE will conduct, on a quarterly basis, a detailed analysis of the overall strategy and the various assumptions on which the strategy was designed. This exercise will consider how the underlying assumptions (for market risk & credit risk) have actually materialized and whether the structure needs to be realigned.

What CPOS Ratings are not?

CARE's CPOS ratings are not recommendations to purchase, sell or hold a security. These ratings do not comment on the volatility of net asset value (NAV) of the scheme or the level of NAV compared to the face value during the tenure of the scheme any time before maturity. The ratings are valid only for the specific capital protection oriented scheme rated and are valid only during the tenure of the scheme till maturity of the scheme. However, CARE reserves the right to suspend, withdraw, revise or reaffirm the rating at any time based on any new event or information or on unavailability of information or any other circumstances, which CARE believes may have impact on the rating.

SEBI Regulations

SEBI issued regulations on Capital Protection Oriented Schemes on August 3, 2006 and issued a notification with further clarifications on August 14, 2006. Key provisions of the regulations are presented below:

The regulations require that in all the documents & advertisements, the mutual fund should disclose that the scheme is "oriented towards protection of capital" and "not with guaranteed returns".

- The orientation towards protection of capital should originate from the portfolio structure and not from any bank guarantee, insurance cover, etc.
- Close-ended and No Re-purchase -All capital protection oriented schemes should be close-ended and the asset management company is not allowed to repurchase any units of the scheme before maturity. This implies that there is no exit route available to the investors unless the scheme is listed on an exchange.
- Debt component of the portfolio structure should be of the highest investment grade rating.
- Rating -SEBI regulations state that "the proposed portfolio structure indicated in the offer document and key information memorandum must be rated by a SEBI registered credit rating agency from the view point of assessing the degree of certainty for achieving the objective of capital protection."
- Rating should be reviewed on a quarterly basis.

Section II

Capital Protection

Financial strategies which try to limit the downside risk of investment and simultaneously attempt to profit from rising markets are classified as portfolio protection or capital protection strategies. These strategies allow investors to recover, at maturity, at least their initial capital, even if equity market declines. Capital protection can stem either from the structure of the portfolio or from an explicit guarantee or both. The guarantee can be given by a third party or by the asset management company itself, in which case the credit quality of the guarantor becomes critical. Capital protection differs from a simple debt investment due to the upside potential that it offers which is not the case in a debt investment.

Portfolio protection is sometimes also called portfolio insurance although the latter name does not properly define the true nature of these strategies. Portfolio "insurance" would imply that the probability of losing the protected capital is minimal and depends only on the credit quality of the insurer. This however is not the case with capital protection and there is always some probability of losing the protected capital which needs to be considered before undertaking such strategies. We will therefore use the "protection" terminology in this paper and not the "insurance" terminology.

Capital Protection Funds

Capital protection funds evolved internationally as a bear market phenomenon and appealed to investors who had suffered significant losses in the market. These funds are promoted under a wide variety of names like principal protected fund, principal protection note, capital preservation fund, guaranteed fund, etc. The principal guarantee is provided by a combination of investment strategies and a backup insurance wrapper which ensures that investors will get back their principal, minus fees, as long as they stay in for the guarantee period.

Basic characteristics

- Guaranteed/Protected principal. Most principal-protected funds guarantee the initial investment minus any front-end sales charge even if the stock markets fall.
- Lock-up period. The guarantee does not apply if the investor sells any units in the fund prior to the end of the "guarantee period".
- Hold a mixture of bonds and stocks. Most principal-protected funds invest a portion of the fund in zero-coupon bonds and other debt securities, and a portion in equity investments.

Strategies

Principal protection can be implemented using a number of different strategies but all of them use some combination of low risk or risk free assets along with risky assets. In this section two of the important portfolio protection strategies are discussed -static portfolio protection and constant proportion portfolio insurance (CPPI). To keep the terminology consistent, we will refer to all the low risk investments as the debt component, which can include investments in government securities and high quality corporate debt (which is similar to the classification by SEBI¹). All the other investments shall be called equity component and may include investments in equity, derivatives, index funds, mutual funds and other asset classes.

A. Static Portfolio Protection

This is the most basic capital protection strategy wherein the protection is provided only through the debt component. In this strategy an amount equal to the present value of the protected principal is invested in the debt component and the residual amount is invested in the equity component. At maturity of the scheme the debt component compounds to the protected principal and the equity component provides the returns (Refer Diagram 1).

Initial Allocation

Initial allocation to the Debt Component is decided on the following major parameters:

1. Amount of protected capital: This is usually equal to the initial principal invested.
2. Prevailing interest rates: If the prevailing interest rates are high at the time of initial allocation, a relatively smaller amount of investment in debt component is sufficient for achieving capital protection. On the other hand, if interest rates are low at the time of initial allocation, a large part of the portfolio will be locked in the debt component.
3. Time to maturity of the scheme: This is inversely related to the proportion of investment in debt component. A scheme with a longer horizon can afford to invest a smaller amount in the debt component as the interest accruals will be more compared to a shorter horizon scheme.
4. Credit quality of the securities: Credit quality of the debt component is also a critical input in determining the allocation to the debt component. A higher credit quality debt component implies more safety for the portfolio.

Equity component in the structure is used to achieve the other objective of the fund, i.e. generating high return. This component is usually equal to the residual amount after determining the debt component.

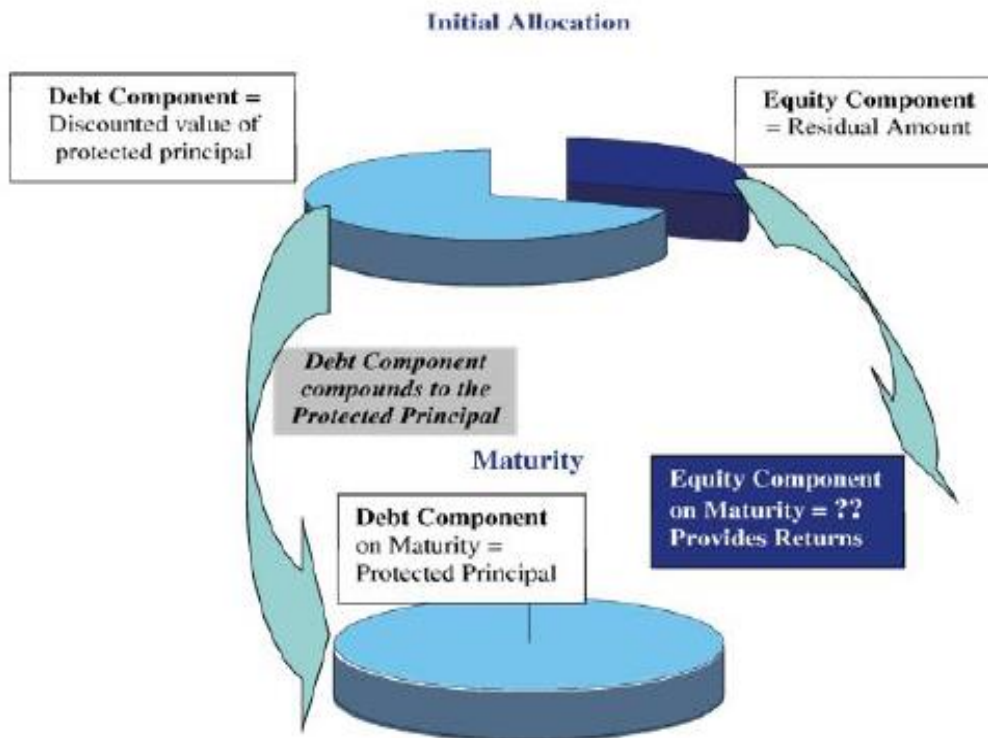


Diagram 1: Static Portfolio Protection Strategy

Re-allocation

Change in above parameters forms the basis of any re-allocation of the existing portfolio. Although the structure is built with a certain amount of cushion against reinvestment risk and credit risk, a substantial decrease in interest rates or a more than anticipated decrease in credit quality will require a higher proportion of investment in the debt component. Note that here "the proportion" of debt component is with respect to the protected amount and not the total value of assets.

B. CPPI

Constant Proportion Portfolio Insurance (CPPI) is a simplified dynamic portfolio protection strategy which was introduced by A. R. Perold in 1986 for fixed-income instruments and by Fisher Black & Robert Jones in 1987 for equity instruments. The basic approach of this strategy is that when portfolio value is high, more assets are employed to earn returns; and when the portfolio value is low, more assets are employed to provide protection (i.e. invested in debt component). "Protection" comes from the condition that if portfolio value falls substantially, the portfolio will be rebalanced immediately and fully invested in the debt components which will then mature to the protected amount. CPPI provides a simple and highly flexible approach to portfolio protection.

Initial Allocation

CPPI strategy begins by setting a floor equal to the lowest acceptable value of the portfolio (which is simply the present value of protected capital). The portfolio value in excess of the floor is called the "cushion". CPPI then allocates to the equity component an amount equal to the cushion multiplied by a predetermined gearing factor called the multiplier (all these components are discussed below). The remaining funds are invested in the debt component. (Refer to Diagram 2).

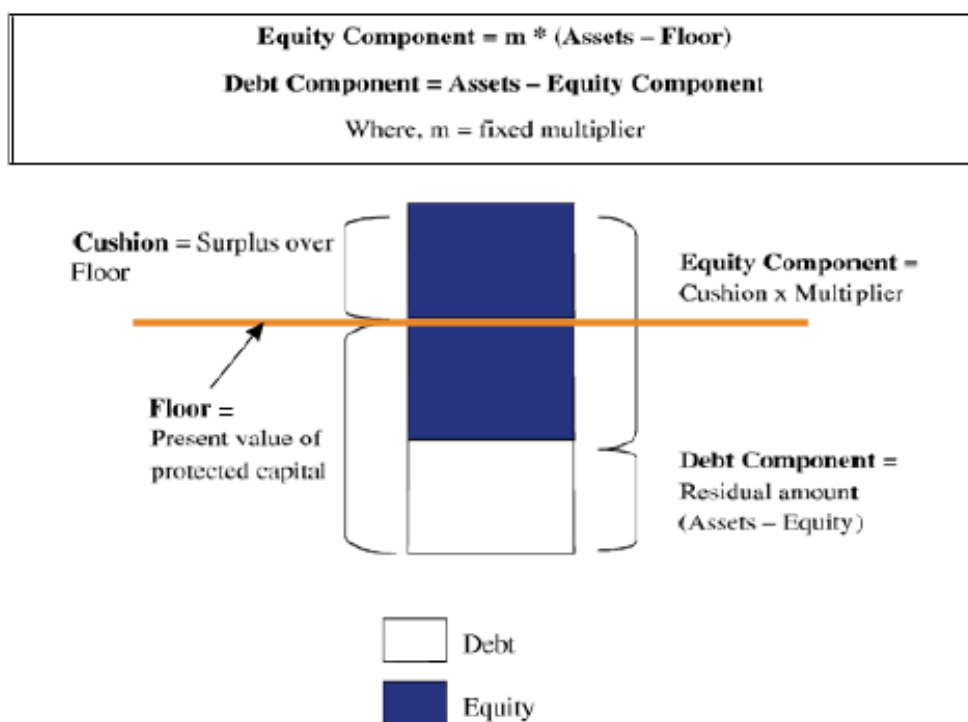


Diagram 2: CPPI Initial Allocation

The major components of CPPI strategy are: Floor: Floor is the value below which the portfolio value should never fall in order to be able to ensure the payment of the protected principal at maturity. Its value depends on the prevailing interest rates on the debt component, credit quality and liquidity of the investments. These determinants affect floor value in the following manner:

Floor Determinants

Determinant	How it affects the Floor
Interest Rates	Inverse. Higher interest rates require a lower floor value
Credit Quality	Direct. Better credit quality implies a smaller floor value
Term to Maturity	Inverse. Longer term maturities means less investment in floor. This implies that the floor value will keep increasing as the scheme approaches maturity.

Multiplier: Multiplier is the gearing factor by which the excess of portfolio value over the floor (i.e. the cushion) is multiplied to calculate the exposure in equity component. A high multiplier will lead to more participation of the fund if equity market rises. It will also lead to a faster move to allocation of assets to the debt if equity markets declines. Volatility of the equity component and market liquidity are major determinants of the multiplier. These factors are given below:

Multiplier Determinants

Determinant	How it affects the Multiplier
Equity Volatility	Inverse. Higher volatility in the equity component means that portfolio value may fall drastically and affect the protection. Thus, high volatility portfolios require a lower multiplier
Liquidity	Direct. If the equity and debt market liquidity is low, it will be difficult for the portfolio to reallocate assets from equity to debt component and avoid the gap event. Hence, lower multiplier is recommended if market liquidity is low.

Trading rules (Rebalancing Frequency): The CPPI being a dynamic trading strategy needs to assess the value of total assets with respect to the protected principal at certain trigger points. These trigger points can be 'time based' or 'move based' (or a combination of both). 'Time based' triggers assess the strategy after certain predetermined intervals (annual, quarterly, monthly, fortnightly etc). These time intervals are determined after giving due weightage to the opposing demands of controlling transactions costs (preferring longer intervals) and volatility & liquidity of the equity as well as debt component (preferring shorter intervals). 'Move based' triggers evaluate the portfolio position if the portfolio value has changed by a certain percentage. In either case, if the portfolio composition has diverged from the multiplier rules, assets are reallocated between debt and equity components to ensure that the structure does not violate portfolio protection at maturity.

Re-allocation: Re-allocation of the assets is done on a dynamic basis. If value of the equity component has increased over the rebalancing period, then a higher proportion of assets are allocated to equity (depending on the multiplier). Similarly a fall in the value of equity component implies decreasing the allocation to the equity component. (Refer Diagram 3).

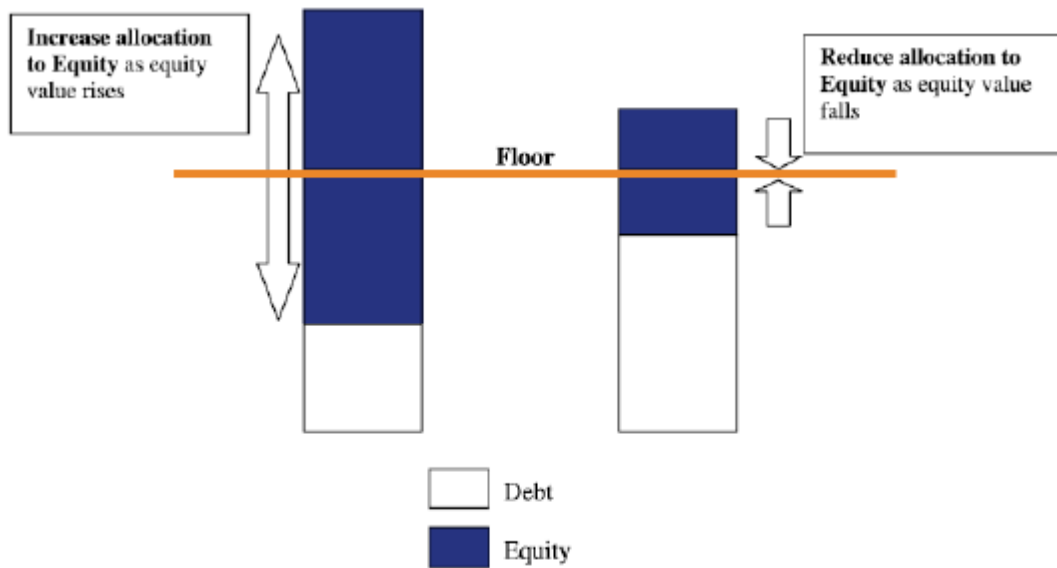


Diagram 3: CPPI Dynamic Allocation

Gap Event Gap event is a situation when the portfolio value (especially the equity component) falls substantially over a short period of time (which is less than the rebalancing period) and falls below the floor, hence violating the portfolio protection. A good CPPI strategy tries to ensure that a gap event is avoided (by using an optimal multiplier) and even in the worst case scenario all assets are comfortably transferred to the debt component in time. (Refer to Diagram 4: Gap event)

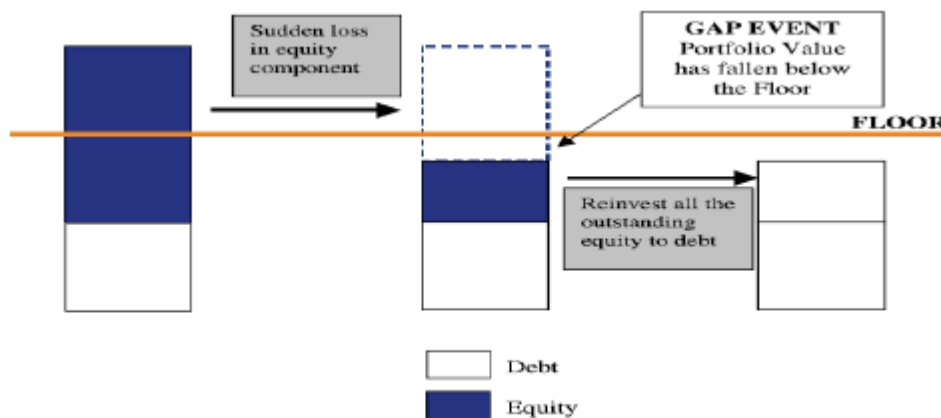


Diagram 4: Gap Event

CPPI Variants

The CPPI strategy outlined above may be implemented with some modifications depending on varying market conditions and different financial instruments available.

- **Use of Leverage:** A CPPI portfolio may even employ leverage if value of the equity component is sufficiently high or its volatility low⁴. This can further increase the returns from the strategy.
- **Use of Futures:** Due to the dynamic nature of CPPI strategy, rebalancing the portfolio at regular intervals increases the transaction costs. The equity component of a CPPI portfolio may be replicated by using futures on the underlying securities which can reduce the transaction cost. Presence of a highly liquid futures market and high correlation of futures with the underlying are pre-conditions for implementing this strategy.
- **Variable Multiplier:** Value of the multiplier, which is determined at the inception of the strategy, depends on factors such as market volatility and liquidity. Therefore a static multiplier assumes that underlying factors will remain constant. Since actual market variables are likely to change over time, this variant of CPPI allows for a change in the multiplier after certain time intervals. For example, it may be linked inversely with market volatility and recalculated every six months. This new multiplier can then be used for the next six months trading rules.
- Setting a minimum limit of the debt component which needs to be maintained at all times is a conservative CPPI strategy.

CPPI & Static Portfolio Protection

A static portfolio protection strategy is a special case of CPPI with a multiplier of one.

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CARE Ratings Limited

4th Floor, Godrej Coliseum, Somaiya Hospital Road,
 Off Eastern Express Highway, Sion (East), Mumbai - 400 022.
 Tel: +91-22-6754 3456, Fax: +91-22- 6754 3457, E-mail: care@careratings.com

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