# Articles

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MUTUAL FUNDS ASSOCIATION OF PAKISTAN

# Constant Proportion Portfolio Insurance

Strategy with growing interest in Pakistan Mutual Fund Industry

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## Preface

Mutual Funds are an alluring opportunity for many to make the most of their savings to meet their respective objectives. Empirical evidences have suggested that people hold different level of risk appetites which are broadly categorized as low, medium and high level risk. This behavioral pattern of investment preference has pushed the development of different categories of mutual funds. Pakistan's Mutual Fund Industry, despite numerous regulatory and taxation issues, have greatly been able to manage the development of various categories of the funds. The products developed by now address the diverse risk appetites of all investors. Various strategies are in place to make the performance of the funds better. Among other contributing factors, these strategies have pushed industry net assets from PKR 200.05 billion in 2010 to PKR 443.47 billion in 2015, a remarkable increase of 122% over last five years. One of the dynamic strategies currently being adopted is Constant Proportion Portfolio Insurance (CPPI) methodology which has remained center of interest for many investors for last few years due to its simplicity and possibility to customize it to the preferences of risk-conscious investors who are willing to benefit from rising equity markets.

## Methodology Overview

Constant Proportion Portfolio Insurance (CPPI) first introduced in mid 80s is now internationally recognized investment strategy used by many prominent financial institutions. CPPI methodology helps to limit downside investment risk and at the same time to profit from rising equity markets. The key terms used in this strategy are floor, cushion and multiplier. With respect to funds, this methodology allocates the net assets of the fund in two asset classes i.e. in equity shares / funds which constitute risky portion and in money market & income instruments / funds reflecting riskless investment. The allocation to each asset class depends on the cushion value which is defined as (current portfolio value – floor value), and a multiplier coefficient. Multiplier coefficient in its simple form is a number represents a nature of strategy being pursued by the respective fund investment managers. The higher the number, the more aggressive the strategy is. The value of the multiplier is based on the investor's risk profile, the rebalancing frequency and the maximum one-period loss expected on the risky basket. The beginning investment in the risky asset i.e. in equity stocks or funds is determined by (Multiplier coefficient) x (Cushion value) and the remainder is invested in the income / money market instruments or funds. Since the units in funds are continuously offered and redeemed, the portfolio value of the fund keeps changing. Consequently, the cushion value grows or declines allowing greater or lesser allocation into the risky asset class. A simple tabular overview of movement in CPPI portfolio is shown below:

| Market Conditions | The CPPI Portfolio | |
|---|---|---|
| **Equity Market Movements** | **Allocation to Equities** | **Allocation to Income/Debt** |
| Rising markets | Increase Participation | Decrease Participation |
| Flat markets | No Change | No Change |
| Declining markets | Decrease Participation | Increase Participation |
| **Interest Rate Movements** | | |
| Rising interest rates | Increase Participation | Decrease Participation |
| Constant interest rates | No Change | No Change |
| Declining interest rates | Decrease Participation | Increase Participation |

The table above highlights  the general overview how portfolio under CPPI strategy is rebalanced between Equity shares / funds and Income or Money market instruments / funds. Rising Equity markets provide an opportunity to increase equity holding more than that of income or money market instruments. However, market with bearish trend requires the fund manager to reduce equity holding and increase investments in income or money market instruments. Similarly, in an environment of contractionary monetary policy i.e. rising interest rate, participation in money market / income instruments or funds is lesser than that of equity. In economic environment with lower interest rates, CPPI based portfolio is filled with more money market / income instruments or funds units. Equity markets with little or no change and static interest rate environment keep the CPPI portfolio fairly unchanged.

### How does the Strategy work in falling Equity Market?

CPPI strategy provides an opportunity to benefit from rising equity market. However, it is also exposed to downside risk in case of falling equity market. In order to understand the cycle of CPPI strategy management, let us consider a CPPI fund with a life of 2 years and unit price of Rs. 100. As per CPPI strategy, allocation to risky asset class should be a product of multiplier and the cushion value. So the investment in risky assets class equates the product of Multiplier and Cushion Value i.e. Rs.50 [5 x (100-90)]. Therefore, assuming a multiplier of 5, the subject fund will invest Rs. 50 in a risky assets class while the remaining Rs. 50 will be allocated to risk-free asset. i.e. Rs. 50. As the bearish trend in the market sets in, it adversely affects CPPI strategy based funds. Assuming risky assets in down trending market environment falls by 10%, resulting in a reduced cushion value of Rs. 05 which eventually leads to fund value to Rs. 95. Accordingly, the exposure to risky asset will be reduced to Rs. 25, i.e. [5 x (95-90)]. Similarly, the exposure to risky asset class will again be increased, as the market begins to take momentum.

### What are the Risks is the CPPI Strategy exposed to?

One of the most critical risks which the strategy has is Gap Risk. Gap Risk arises as a sudden decrease in value of risky asset which may cause a drop in portfolio value below the bond floor needed to guarantee principal protection while not giving the fund manager an opportunity to re-allocate portfolio holdings; such an event is called a ‘Gap Event’. Gap events can be mitigated by keeping CPPI inputs at optimal levels in light of historical performance of the risky asset class and prevailing interest rates. When a near gap event occurs, the portfolio is generally allocated in entirety to the risk free asset to ensure capital protection. There are various sources of risks which lead to Gap Risk. These are elaborated below.

### Price Risk

Price risk is considered to be the greatest source of risk CPPI based fund may face. Scenario based analysis should be done to discover the subject fund’s resilience to downside movement in price of risky asset. With a very conservative combination of floor value and multiplier, investors can still be exposed to the risk of capital erosion if the market in which the risk based portion of the fund is invested, experiences a steep decline. Here, the time interval for portfolio re-balancing can mitigate the downside risk, though its impact becomes less meaningful in a market experiencing free fall and not providing an opportunity to exit. On the contrary, in a rising market, the fund manager can adapt the aggressive strategy with greater ability to protect the capital invested.

### Liquidity Risk

A CPPI based fund may either invest directly in various asset classes, or such exposure may be built indirectly by way of investment in other collective investment schemes. In mutual funds, where units are continuously offered and redeemed, the fund manager's ability to frequently change portfolio holding with minimal discount to market may be affected, and hence it gives rise to liquidity risk. In case of the funds, whose investments are in other collective investment schemes, overall size of the subject fund must be assessed in relation to the underlying fund to determine the liquidity risk associated with redemption.

### Rebalancing Frequency

Portfolio rebalancing primarily safeguards the investor from being overly exposed to undesirable risks. Secondly, rebalancing ensures that the portfolio exposures remain within the manager's area of expertise. But its frequency matters the most here. Basic methodology to decide the interval of portfolio rebalancing is the predetermined time intervals i.e. quarterly, monthly and weekly. Under the current regulatory framework in Pakistan, all CPPI based funds are required to rebalance their portfolio in the event of 2% decline in portfolio value of the funds from the previous rebalancing or on weekly basis, whichever falls earlier.

### Regulatory requirements for CPPI based Collective Investments Schemes (CIS) in Pakistan

In mid May 2015, the Securities and Exchange Commission of Pakistan (SECP) issued a circular to all Asset Management Companies (AMCs) operating in Pakistan to comply with certain requirements for the funds which have adapted CPPI methodology. There are several requirements in the circular for which the subject circular can be downloaded from SECP's or MUFAP's website. However, few of them are discussed here. Firstly, the said directive set multiplier limit with respect to their cushion value percentage as follows.

| Cushion Value Percentage | Maximum Multiplier |
|---|---|
| 0% - 2.5% | 0 |
| 2.6% - 5.0% | 2 |
| 5.1% and greater | 4 |

However, according to recommendations made by MUFAP, the maximum multiplier limit had been proposed as follows:

- When cushion is 2.5% or less - no equity exposure
- When cushion is between 2.6% to 5% - Maximum Multiplier will be 2
- When cushion is between 5.1% to 10% - Maximum Multiplier will be 5
- When cushion is over 10%, the Fund Manager will have the discretion to determine the Multiplier subject to the following:
    - In the first quarter from the Fund launch - Maximum Multiplier will be 5
    - In the second quarter from the Fund launch - Maximum Multiplier will be 6

If any asset management company locks in any profit amount, the same must be added to the bond floor and the cushion will be recalculated accordingly.

This is backed by the facts that current economic and interest rate environment i.e. low discount rate and inflation figures and fund's cost structure do suggest the possibility of taking higher exposure in equity instruments or stocks.

Secondly, the circular also necessitates the respective AMCs to immediately rebalance the asset composition of the CIS in accordance with its approved methodology disclosed in the offering documents of the CIS, at least on 2% decline in Portfolio value of the CIS from the previous rebalancing or on weekly basis, whichever falls earlier. This is technically viewed as fair treatment in the interest of investors and was in line with MUFAP's recommendations.

### CPPI Strategy based funds and Growth of Mutual Fund Industry

Empirical evidence suggests that there has been growing interest from investors for CPPI based funds as these funds have contributed Rs. 28.7 billion or 7.0% to industry AUM's in FY 14-15. The fund size of all CPPI based funds grew at worth noting rate of 76.39% in FY 14-15 as compared to previous year. One of the reasons for such tremendous growth is that investors remain reluctant in making direct investment into equity funds. Whereas CPPI strategy based funds provide investors opportunity to gain from the upside of the stock market while mitigating the downside risk. Considerably in FY 14-15, CPPI based schemes, both conventional and Shariah Compliant earned on average a profit of 11.0% as compared to 5.4% in FY 13-14. Having adjusted credit risk associated with the strategy, this becomes even more lucrative avenue when compared with Defense Saving Certificates from Government of Pakistan which currently offer 8.68% per annum average compound rate of return. The net sales for the year FY 14-15 shows a figure of Rs. 10.20 billion which is 23.44% lower than previous year's net sales of Rs. 13.324 billion. This helped the investors understand that key driver of profit increase of 5.6% in current year (11.0% - 5.4% as mentioned above) is mainly due to the performance of the fund itself. Currently the SECP is not approving any new CPPI based funds to be launched.

### Potential for CPPI based funds in Pakistan

At present, CPPI based funds are categorized in Capital protected and Fund of Funds schemes in Pakistan. However, internationally, this strategy is also used in asset allocation schemes and in line with international practices it may be adapted in Pakistan as well. Since investors primarily wish to limit their downside risk and protect their capital at the same time, they seek some dynamic methodology to rely on. Internationally, capital protection is being done through number of strategies such as Dynamic Hedging, Put options and CPPI. Dynamic hedging and availability of Put options do make CPPI based funds less preferred. However, as they involve derivatives which have long way to go to be fully implemented in Pakistan, CPPI strategy remains the only choice. As a final point, the fortune of the strategy in Pakistan is mainly dependent, among other factors, on prospective regulatory amendments in the currently applicable guidelines which may relatively ease or harden the way to flourish.