



CAPITAL PROTECTED FUNDS

Rating Methodology

Capital protected investment strategies guarantee the protection of invested capital at the end of a pre-specified time period, by way of the structure of the fund; the guarantee does not apply if investors sell their units prior to the expiry of lock-up period. These strategies aim to preserve capital by managing asset allocation between a risky asset and a risk-free asset. Broadly, there are 2 different kinds of strategies employed to ensure capital protection; these include a Static Hedge Structure and a Dynamic Hedge Structure; the latter can take varying forms.

The objective of this paper is to provide an understanding of two forms of capital protection strategies and JCR-VIS' approach in assigning Capital Protection Ratings to funds utilizing these strategies. The rating does not comment on the return potential of any of the employed strategies.

Types Of Strategies

1. Static Hedge: This strategy strives to eliminate risk altogether and primarily involves the use of a risk-free debt instrument to ensure principal repayment at maturity. A static hedge is constructed such that it does not require any adjustment during the life of the fund. The difference between the future value and present value of principal is invested in a risky asset to supplement overall return of the fund. Overall exposure to downside risk remains minimal, given the certainty of receiving principal payment at maturity by way of investment in a risk-free debt instrument.

Having a low risk profile, in comparison to a dynamic hedging structure, also translates into a lower upside potential for the investor.

2. Dynamic Hedge: The need for a more aggressive strategy that could tap on to the potential upside offered by various risky asset classes while retaining the protection element, resulted in the development of Constant Proportion Portfolio Insurance (CPPI) based investment strategy. CPPI based funds are often compared to 'bond plus call option capital protected funds'. Difference in payoff of the two strategies depends on future market value of the risky asset and their value at maturity. Let's suppose stock market as the risky asset class; in a rising equity market, CPPI will be able to outperform the option protected strategy as CPPI based fund will progressively increase allocation to the stock market. However the same will underperform when the market is following a downward trajectory.

The CPPI strategy entails dynamic asset allocation between the risky asset and the risk-free asset. Under this strategy, exposure to risky asset increases when the risky asset generates positive returns. In a falling market scenario, the asset allocation becomes increasingly conservative and may at times start mirroring a Static Hedge structure. A basic understanding of a CPPI based fund is illustrated in Exhibit 1. The following terminology is essential to understanding the structure of a CPPI based fund.

¹ Risky asset may imply investment in avenues including, but not limited to, equities, commodities, etc.

² A risk-free asset implies a debt instrument with a very high rating i.e. AA band or above.

i) Multiplier: This number determines the aggressiveness of the CPPI based fund and reflects the investor's risk appetite.

ii) Bond Floor Value: Minimum value that the portfolio is allowed to reach in order to be able to payback all future due cash flows (including notional guarantee at maturity). Bond Floor values can be fixed, or variable, and will be arrived at, on the basis of yield on underlying fixed income instruments.

iii) Cushion Value (also referred to as Gap): Difference between Total Fund Value & Bond Floor Value.

Exhibit 1:

Assumptions

Multiplier = 5

Bond Floor value fixed at Rs. 90

Return on treasury bills = 10.0%.

▪ Suppose we have 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 as shown below:

$$\begin{aligned}\text{Investment in risky asset} &= \\ &= \text{Multiplier} \times \text{Cushion Value} \\ &= 5 \times (100-90) \\ &= \text{Rs. } 50\end{aligned}$$

So the fund will invest Rs. 50 in a risky asset class while the remaining Rs. 50 will be allocated to risk-free asset.

▪ Now suppose the market value of the risky asset falls by 10%, resulting in a decline in fund value to Rs. 95 and resulting in a reduced cushion value of Rs. 5. Accordingly the exposure to risky asset will be reduced to Rs. 25 [i.e. $\{5 \times (95-90)\}$].

▪ The exposure to risky asset will be increased in case market value of risky asset rises.

CPPI based funds may demonstrate a higher risk appetite at the beginning of the term which dissipates as the fund approaches maturity. JCR-VIS will seek

limits for floor value and multiplier, to determine the risk appetite of a fund. Likewise, frequency of re-balancing the portfolio is also to be decided by the fund manager. Rebalancing triggers can be based on time intervals such as quarterly, monthly or even daily or could be triggered by a pre-defined level of market movement. In addition to the downside risk associated with any asset class, the transaction costs may also impact the fund manager's decision regarding the same. All these parameters for any CPPI based fund are to be decided within the regulatory framework for such funds. Globally CPPI-based funds leverage themselves to increase exposure to equity markets. As such, Collective Investment Schemes are not allowed to leverage themselves in general, under the prevailing regulatory framework in Pakistan.

Rating The Static Hedge Cpf

Static Hedge Funds call for protection of principal, through investment of a portion of the fund in fixed income portfolio, which will allow for value at maturity to match initial consideration. The remainder of the fund is invested in the risky asset class, allowing investors to capitalize on potential upside.

Capital protection segment is secured by way of deployment of such portion of funds in fixed income instruments of very high credit quality, in line with the regulations governing these funds in the local market; in view of this, these funds are likely to maintain a conservative risk profile and exposure to downside risk is expected to remain minimal. The ratings of funds employing static hedge strategy are largely expected to mirror the ratings of the underlying issuer/issue in which the capital protection segment has been deployed. In the absence of outstanding rating by JCR-VIS for an issue/issuer where funds have been deployed, JCR-VIS may assign shadow rating to determine the fund's exposure to credit risk. JCR-VIS will also examine concentration related risks if exposure with a single counterparty is

sizeable in context of the size of the counterparty itself.

In addition to variation in price of risky asset, fixed income instruments held by the fund in the capital protection segment may also be marked-to-market, in view of which the fund's Net Asset Value may be subject to price risk during the life of the fund. The Capital Protection rating however does not comment on the variation in NAV during the life of the fund. This may however become an issue if the maturities of assets in the capital protection segment are not matched with the life of the fund.

Rating The Dynamic Hedge Cpf

Ratings of Dynamic Hedge CPFs involve a much elaborate review of the fund's exposure to various sources of risks, as these funds have the capacity to assume greater level of market risk. A fund may exhibit changing risk appetite over its life with ability to assume greater risk during the earlier part; if there are any maximum thresholds stipulated in the fund's investment policy with respect to the exposure to risky asset class, beyond the regulatory stipulations, which may further limit exposure to downside risk, these may support the rating of a fund.

JCR-VIS will seek various parameters laid down by the fund manager to arrive at the risk appetite of a fund. In some cases, the CPPI inputs, including the floor value, multiplier & cushion, in addition to re-balancing frequency, may be fixed at the outset, whereas in others, these may be subject to change, at the discretion of the fund manager. A high frequency of changes in CPPI inputs is viewed adversely from the rating perspective as the fund may start exhibiting an active management style more than a disciplined portfolio management strategy.

Below is a discussion of the various factors that are evaluated by JCR-VIS during the rating process.

Gap Risk: Gap risk is the most critical risk as a sudden decrease in value of risky asset 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.

Gap Risk can in turn arise due to the fund's exposure to various sources of risks:

- **Price Risk:** JCR-VIS reviews fundamentals of the asset class, where substantial investments have been made (either directly or indirectly) to determine the exposure to price risk. Risk metrics ranging from duration, beta, historical standard deviation of return, Value at Risk and Expected Shortfall may be used, depending on the asset class in which the fund has been deployed.

Price risk is perhaps the greatest source of risk that may be faced by a CPPI based fund. In order to ascertain the fund's resilience to downside movement in price of risky asset, JCR-VIS will conduct scenario testing to identify the quantum of potential market movement that may trigger a Gap Event. Volatility in returns of the underlying risky asset will also be analyzed. Given 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. In such cases, time interval for portfolio re-balancing can mitigate the downside risk given a conservative mix of floor value and multiplier; though its impact becomes less meaningful in a market experiencing free fall and not providing an opportunity to exit. On the other hand, in a rising market, even the most aggressive combinations of floor value and multiplier will not adversely affect the fund's capital protection ability.

- **Credit Risk:** Refers to the default risk associated with the fund's investments.

Akin to Static Hedge Funds, in the absence of outstanding rating by JCR-VIS for an issue/issuer, JCR-VIS may assign shadow rating to determine the fund's exposure to credit risk.

▪ **Liquidity Risk:** This risk refers to the ability to off-load portfolio holdings, when desired and with minimal discount to market. Liquidity risk becomes an added element in case of thinly traded assets, as it could affect the fund manager's ability to off-load its holdings and avoid gap 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 case of latter, JCR-VIS also evaluates the size of a CPPI based fund in relation to the underlying fund to determine the liquidity risk associated with redemption.

▪ **Reinvestment Risk:** A decline in interest rate levels can adversely impact the fund value by creating a difference between the expected yield and actual yield. Funds carrying instruments with returns pegged to market benchmark rates may be exposed to a higher degree of reinvestment risk versus funds holding fixed income instruments.

▪ **Float Risk:** Float risk arises when co-terminus debt instruments, in line with fund's maturity, are not available, or where the fund generates a lower return than projected on account of delays in deployment. In case of Shariah Compliant Funds, where fixed income instruments across various maturity profiles may not necessarily be available, this risk may be greater; though it could be mitigated by using fund of fund structure or by allocating a higher proportion of funds in debt instruments to build a cushion.

Asset Manager Quality

JCR-VIS reviews the strategy being employed and the fund manager's adherence to the respective strategy. The discipline with which the portfolio is re-balanced becomes a very important consideration in a CPPI based fund. Moreover, the capabilities of a company's

IT infrastructure also assume added significance in managing and monitoring CPPI based funds. IT systems that allow for active monitoring and reduced human interface are viewed positively. The fund manager's prior experience in managing various asset classes where a CPPI based fund is invested will also be taken into consideration.

External Credit Enhancement

External credit enhancement may bridge the gap risk, and is built into the rating assessment, where available. Such credit enhancement is evaluated for the timeliness of the guarantee in addition to the financial strength of the guarantor.

Rating The Funds

JCR-VIS will assign ratings to all funds following various types of capital protection strategies on a common scale, ranging from CP1 to CP5, having (+) modifier for each category.

CPFs are by design structured as closed end funds. Alternatively, the fund may have high back-end load to discourage redemption prior to maturity. Investors who may need ready access to their funds may need to be cautious when considering investing in a capital protected fund. Depending on how the fund is structured, early withdrawal may mean losing the principal guarantee and facing early withdrawal fees. However, assigned ratings only comment on value of principal at the time of maturity or as the stated fund objective may be. In case of open-end fund structures, JCR-VIS will also examine the unit-holder concentration levels; large redemptions requiring liquidation of portfolio holdings may affect ratings, to the extent that they impact a fund's ability to meet capital protection for investors that continue to hold their investment in the fund.

The main difference between a static hedge capital protected fund and CPPI based fund is the proportion that can be invested in risky assets and hence exposure

to downside risk. Higher ratings will be assigned to fund structures which have minimal likelihood of shortfall in initial capital. A static hedge fund having the present value of principal to be paid at maturity deployed in a risk free instrument such as deposit with 'AAA' rated bank or a sovereign instrument, having matching maturity profile as the fund's life, is likely to achieve the highest Capital Protection Rating. Moreover, funds invested in conventional instruments may be able to lock-in returns over the entire life of the fund and may be able to achieve higher ratings than similar profile Islamic funds that may be exposed to re-investment risk.

No minimum performance history is required for undertaking Capital Protection Ratings. All outstanding Capital Protection Ratings will be subject to a quarterly review by JCR-VIS.

Capital Protection Rating Scale

Risk of capital erosion increases as we move down the following scale:

CP1+, CP1

Very high certainty of capital protection in stable economic environment

CP2+, CP2

High certainty of capital protection in stable economic environment

CP3+, CP3

Moderate certainty of capital protection. Capital protection is expected in stable economic environment

CP4+, CP4

Adequate certainty of capital protection. Capital protection is vulnerable to adverse changes in economy

CP5+, CP5

High risk to capital protection; Degree of erosion in capital is expected

Plus (+) sign indicates relative standing within a rating category.

While no Outlook is assigned to ratings of Capital Protected Funds, ratings may be placed under Rating Watch if JCR-VIS views that the status of the assigned rating is uncertain and there are conditions present that necessitate re-evaluation of the assigned rating. Developments in factors other than those that necessitated the 'Rating Watch' may result in a rating change, while the rating continues to be under 'Rating Watch'. Refer to our 'Criteria for Rating Watch' for details. www.jcrvis.com.pk/images/criteria_watch.pdf



Faheem Ahmad

*President & CEO, JCR-VIS Credit Rating Company Limited
Founder, VIS Group
Chairman, Association of Credit Rating Agencies in Asia*

Mr. Ahmad possesses 30+ years experience in financial risk assessment with focus on Islamic finance, venture capital and general management. He has top level management experience at international level in the fields of credit ratings, Islamic and conventional financial risk assessment modeling, industrial management and construction engineering. Mr. Ahmad is an active participant at international forums on Credit Ratings. He obtained his B.S in Civil Engineering from NED University of Engineering and Technology, Karachi. He also has Masters Degrees in Engineering and Business Administration from USA.



Sobia Maqbool, CFA

Director International Operations & Product Development

Sobia has 11 plus years of professional experience in the field of credit ratings. As Director International Operations & Product Development at JCR-VIS Credit Rating Company Limited, she is in charge of a multi-jurisdiction team & supervising rating assignments across a diverse range of sectors, including sovereigns, financial institutions, among others, in addition to leading the organization's initiatives in new fields, both locally as also internationally. She also provides analytical support for international assignments conducted by Islamic International Rating Agency (IIRA) in now more than 10 jurisdictions in the region and beyond.

Sobia has represented JCR-VIS at several forums, including regulatory committees, conferences and other initiatives to further the concept of ratings. Sobia is a Rating Committee member of both JCR-VIS & IIRA, which is a body that considers all rating actions. Sobia has been actively involved in research activities & development of methodologies. She has developed analytical methodologies for various market segments including Fiduciary Ratings for IFIs, Public Finance, Mutual Funds, Bank Loans, Debt Instruments, Project Finance, Securitization, Takaful, among others. Sobia has spoken at both local & international forums & has been facilitating training courses in both Pakistan & abroad. She holds an MBA degree in Finance and is also a CFA charter holder.



Mohammad Aarsal Ayub – Assistant Manager

Arsal has been associated with JCR-VIS since mid-2013. During his tenure, he has worked on credit analysis of various industrial corporates, financial institutions and debt instruments. Aarsal holds a Bachelors degree in Finance, Account & Management from the University of Nottingham.

Jahangir Kothari Parade (Lady LLOYD Pier)

Inspired by Her Excellency, The Honorable Lady Lloyd, this promenade pier and pavillion was constructed at a cost of 3 Lakhs and donated to the public of Karachi by Jahangir Kothari to whose generosity and public spirit the gift is due. Foundation stone laid on January 5, 1920. Opened by Her Excellency, The Honorable Lady Lloyd on March 21, 1921.

Dome: A roof or vault, usually hemispherical in form. Until the 19th century, domes were constructed of masonry, of wood, or of combinations of the two, frequently reinforced with iron chains around the base to counteract the outward thrust of the structure.

Origins: The dome seems to have developed as roofing for circular mud-brick huts in ancient Mesopotamia about 6000 years ago. In the 14th century B.C. the Mycenaean Greeks built tombs roofed with steep corbeled domes in the shape of pointed beehives (tholos tombs). Otherwise, the dome was not important in ancient Greek architecture. The Romans developed the masonry dome in its purest form, culminating in a temple built by the emperor Hadrian. Set on a massive circular drum the coffered dome forms a perfect hemisphere on the interior, with a large oculus (eye) in its center to admit light.



Jahangir Kothari Parade

National Excellence, International Reach

JCR-VIS Credit Rating Company Limited is committed to the protection of investors and offers a blend of local expertise and international experience to serve

the domestic financial markets. With its international reach, JCR-VIS is positioned to aim for an international mark. In this regard, the global experience of our principal, Japan Credit Rating Agency, Ltd. has been invaluable towards adding depth to our ongoing research endeavors, enriching us in ways, that enable us to deliver our responsibilities to the satisfaction of all investors.

The edifice of the Jahangir Kothari Parade has stood proudly through the years and is a symbol of our heritage. Its 'Dome' as the most stable of building structures, exemplifies architectural perfection. Committed to excellence, JCR-VIS continues its endeavor to remain an emblem of trust.

JCR-VIS Credit Rating Company Limited

Technical Partners Islamic International Rating Agency, Bahrain
JV Partner CRISL, Bangladesh
Member Association of Credit Rating Agencies in Asia

KARACHI

VIS House - 128/C, Jami Commercial Street 14
D. H. A. Phase VII, Karachi - Pakistan

LAHORE

VIS House - 61-A/1, Street # 17
Cavalry Ground, Lahore - Pakistan

Tel: (92-21) 5311861-70 Fax: (92-21) 5311872-73

E-mail: info@jcrvis.com.pk

Website: www.jcrvis.com.pk