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MPERS

Investment Policy Implementation Tools – Derivatives

Derivatives are a common instrument used by institutional investors to manage risk within the investment portfolio. What is a derivative? It is essentially an investment contract (such as a future, option, or swap) whose value is derived from the value of an underlying asset. The term “contract” is important, as it represents an agreement between two parties to ultimately buy (or sell) the asset at an agreed upon date and price. The underlying assets typically include bonds, stocks, currencies, or the broader bond and stock indices. The contracts utilized by MPERS are standardized contracts and are liquid. Most can be bought or sold within a few minutes with simple email instructions to a service provider.

There are different types of derivative contracts available for investors. The most common forms are defined below.

- **Futures contracts:** A futures contract is a legal agreement to buy or sell a particular asset or security at a predetermined price at a specified time in the future. The buyer of a futures contract is taking on the obligation to buy and receive the underlying asset when the futures contract expires. The seller of the futures contract is taking on the obligation to provide and deliver the underlying asset at the expiration date. Futures contracts are standardized with fixed maturity dates and uniform underlying assets. This facilitates trading on a futures exchange, where gains or losses (based on price movements of the underlying asset) are settled daily. Futures contracts are more commonly used when the underlying assets are bond or stock market indices.
- **Forward contracts:** A forward contract is similar to a futures contract in that it represents a contract between two parties to buy or sell an asset at a specified price on a future date. It is different from a futures contract in that it is a customized arrangement made between two counterparties that negotiate and agree on the exact terms of the contract (including the expiration date, and exactly what and how many units of the underlying asset are represented in the contract). Forward contracts do not trade on a centralized exchange and are therefore, referred to as over-the-counter instruments. They are more common for currency markets, as well as for various commodities such as grains and other agricultural products, precious metals, and for the oil and gas markets. Forward contracts only settle at the end of the contract.
- **Option contracts:** An options contract is an agreement between two parties to facilitate a potential transaction for an underlying asset at a preset price (referred to as the strike price) prior to the expiration date. The two primary types of option contracts are call and put options. The buyer of a call option has the right to buy the number of shares covered in the contract at the strike price, and therefore, profits as the underlying asset appreciates. Put buyers have the right to sell shares at the strike price in the contract, and therefore, profit from price declines in the underlying asset. Option sellers, on the other hand, are obligated to transact their side of the trade if a buyer decides to execute the call or put option, and therefore have the opposite payoff structure to the option buyer. Most option contracts have standard strike prices and expiration dates and trade on an exchange.

- **Swap contracts:** A swap is a contract through which two parties exchange the cash flows or liabilities from two different financial instruments. The cash flows are typically based on a notional principal amount; however, the notional principal does not usually change hands. Each cash flow comprises one leg of the swap, and the parties simply agree to pay their agreed upon cash flow to the other party (based on the notional principal amount). The most common kind of swap is an interest rate swap, whereby one cash flow (or leg) is generally fixed while the other is variable and based on a benchmark interest rate. Swaps do not trade on exchanges, but instead represent another over-the-counter contract that is customized to the needs of both parties.

Derivatives are an important risk management tool for investors, and can be used to either reduce or increase the overall risk profile of the investor. They are also more complex relative to simply owning the underlying asset, which is why there can be some cynicism with their use. Some investors use derivatives to speculate on the future price movement of an asset and/or to leverage a return profile of the underlying asset. This will increase the risk profile of the investor and lead to a more volatile return profile. Other investors will utilize derivatives to hedge a particular risk in the portfolio, thereby reducing the risk profile. Some of the earliest participants in the derivatives market were farmers, who would sell forward contracts to lock in the price of their crop before it was harvested. This allowed the farmer to focus on growing his crop and protect the investment (such as corn) from future price movements. When used properly by professionals with investment experience, derivatives can provide a material benefit to the management of an investment portfolio and can improve the corresponding returns of any asset allocation.

For MPERS' purposes, derivatives have been part of Board-approved policy and a tool available to staff since 2005. MPERS' staff typically utilize derivatives as an alternate method to gain market exposure (typically equity market exposure) within the investment portfolio. There are a number of ways to obtain exposure to the various market indices, including separate accounts, commingled funds, exchange traded funds (ETFs), and through derivatives and synthetic securities. When staff use derivatives, it is because it is the most cost effective and efficient way to gain index exposure at the time of the investment. These are ongoing decisions that are evaluated on a regular basis to ensure the best use of the System's resources. The derivatives used by MPERS are highly liquid and can be bought or sold instantaneously relative to obtaining the same exposure through various other methods (as described above), which can be an invaluable tool during volatile markets. MPERS' investment policy also requires the use of an external advisor to execute derivative trades on our behalf, providing an important risk control given their complexity. Parametric (formerly Clifton) has been advising MPERS in this role since 2008.