

## Level I Flashcards Sample

UpperMark™ Flashcards are a highly effective and convenient way to review and retain key concepts and keywords. This document provides a sample of our printed flashcards. Our e-flashcards contain the same content.

### FRONT

CAIA Level I – March 2009 Exam  
Topic 6 Covariance and Correlation

**L.O. 8. Understand the concept of geometry of risk.**

© 2008 UpperMark, LLC. T6-L.O.8 10

### BACK

CAIA Level I – March 2009 Exam  
Topic 6 Covariance and Correlation

A way to understand correlation is to study the *geometry of risk* by viewing the risk of an asset as a vector – e.g., if a 1-cm vector corresponds to 1 unit of risk, then a 4-cm vector corresponds to 4% risk.

- E.g., if a portfolio of 4% volatility is leveraged by 75%, this adds 3 units of risk to the initial portfolio risk. The magnitude of the leveraged portfolio is 7 cm. The correlation between the new leveraged portfolio & the initial portfolio is 1 and the angle between the initial portfolio risk vector & the leverage overlay vector is 0°.

This and other cases are represented below.

Correlation = 0.5 =  $\cos(60^\circ)$   
Correlation = 0 =  $\cos(90^\circ)$   
Correlation = -0.5 =  $\cos(120^\circ)$

© 2008 UpperMark, LLC. T6-L.O.8 10

### FRONT

CAIA Level I – March 2009 Exam  
Topic 6 Covariance and Correlation

**L.O. 9a. With regard to the drawbacks of correlation: contrast correlation with causality.**

© 2008 UpperMark, LLC. T6-L.O.9a 11

### BACK

CAIA Level I – March 2009 Exam  
Topic 6 Covariance and Correlation

Two events  $A$  and  $B$  can be said to be positively correlated if the following two conditions are satisfied.

- When event  $A$  occurs, event  $B$  also occurs, and vice versa.
- When event  $A$  does not occur, event  $B$  also does not occur, and vice versa.

The notion of correlation is distinct from that of *causality*. Causation cannot be established solely based on a high level of correlation. There are reasons that variables may be highly correlated.

- High correlation could occur by chance.
- High correlation could be due to a common cause.

© 2008 UpperMark, LLC. T6-L.O.9a 11

## FRONT

CAIA Level I – March 2009 Exam  
Topic 19 Introduction to Hedge Funds

**L.O. 4b.** For market timing strategies, contrast this strategy with equity long/short.

© 2008 UpperMark, LLC. T19-L.O.4b 9

## BACK

CAIA Level I – March 2009 Exam  
Topic 19 Introduction to Hedge Funds

**Market timing strategies:**

- want full market exposure during a bull market and reduce their exposure during a bear market,
- use stock index derivatives rather than selecting stocks, and
- adopt a **top-down approach**, using macroeconomic variables to forecast expected future GDP and buying stock index options/futures based on the forecast.

**Equity long/short strategies:**

- combine long & short equity positions, holding net long and reducing their long exposure significantly in down markets,
- retain some systematic market exposure, which contrasts with market timing strategies that are typically driven by market movements, and
- adopt a **bottom-up approach**, forming portfolios based on analyses of particular stocks.

© 2008 UpperMark, LLC. T19-L.O.4b 9

## FRONT

CAIA Level I – March 2009 Exam  
Topic 19 Introduction to Hedge Funds

**L.O. 10e.** For convertible bond arbitrage strategies, calculate the number of shares of stock required in a hedge.

© 2008 UpperMark, LLC. T19-L.O.10e 29

## BACK

CAIA Level I – March 2009 Exam  
Topic 19 Introduction to Hedge Funds

**The number of shares of stock required in a hedge** of a convertible bond arbitrage strategy is determined using the hedge ratio or delta of the convertible bond. To hedge the equity exposure of a convertible bond, the shares of underlying stock to be shorted is:

Number of Stock to Short Per Bond = Delta × Conversion Ratio.

**Example**

A convertible bond with a market value of \$960 has a coupon of 7.7%, conversion ratio of 12.5, and delta of 0.4. If the underlying stock is priced at \$80 when a convertible arbitrageur buys 50 bonds, how many shares of stock should she sell short to hedge the equity exposure of the convertible security?

For each bond purchased, should short:  
 $\text{Delta} \times \text{Conversion Ratio} = 0.4 \times 12.5 = 5 \text{ shares.}$   
 Since 50 convertible bonds are bought, she should short  $50 \times 5 = 250 \text{ shares.}$

© 2008 UpperMark, LLC. T19-L.O.10e 29