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Andreas Krause

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Outline

- Exploiting market inefficiencies
 - Sharpe ratio
 - Jensen's lpha
- Portfolio return decomposition



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies

Sharpe ratio

Jensen's α

Portfolio return decomposition



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Trading on information	on I			

Investors may seek to exploit information they have obtained

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Trading on information	on I			

Investors may seek to exploit information they have obtained, believing markets are inefficient

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000
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- ▶ They might buy assets they believe are undervalued or will increase in value

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Considering risks

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000
Considering risks				

Trying to exploit perceived market inefficiencies will change the return on their investments

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Risk types

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Risk types				

Systematic risk The risk affecting the market as a whole

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Risk types

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Risk types				

To assess the performance of an investor, we need to adjust their returns by the risk they are taking

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Risk types

Exploiting market inefficiencies	Sharpe ratio •000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



Sharpe ratio

Jensen's α

Portfolio return decomposition



Exploiting market inefficiencies	Sharpe ratio 0●00	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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▶ If we are concerned about the total risk, we use variance as a risk measure

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0●00	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio 00●0	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 00●0	Jensen's α 0000	Portfolio return decomposition	Summary 0000



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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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	Exploiting market inefficiencies	Sharpe ratio 000●	Jensen's α 0000	Portfolio return decomposition	Summary 0000
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 000●	Jensen's α 0000	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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- ▶ The vertical direction gives the excess return of the investor over the risk-free rate

\blacktriangleright $SR_i = \frac{\mu_i - r}{r}$

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies

Sharpe ratio

Jensen's lpha

Portfolio return decomposition



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0●00	Portfolio return decomposition	Summary 0000

If their portfolio is well-diversified, the investor will not be concerned with idiosyncratic risk

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α o●oo	Portfolio return decomposition	Summary 0000

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 00●0	Portfolio return decomposition	Summary 0000



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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 000•	Portfolio return decomposition	Summary 0000

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 000 \bullet	Portfolio return decomposition	Summary 0000

The CAPM gives the excess return of an asset



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Differences in returns				

▶ The CAPM gives the excess return of an asset as the excess return of the market

$$\blacktriangleright \hat{\mu_i} - r = (\mu_M - r)$$

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 000●	Portfolio return decomposition	Summary 0000
Differences in returns				

The CAPM gives the excess return of an asset as the excess return of the market, adjusted for systematic risk

$$\blacktriangleright \hat{\mu_i} - r = \beta_i \left(\mu_M - r \right)$$

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies

Sharpe ratio

Jensen's α

Portfolio return decomposition


	Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition 0●00	Summary 0000
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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▶ The Sharpe ratio takes into account systematic and idiosyncratic risk

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000



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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

Exploiting market inefficiencies	Sharpe ratio	Jensen's α	Portfolio return decomposition	Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0000

- \blacktriangleright The selectivity is Jensen's α
- Investors may take additional idiosyncratic risk

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary ●000

Exploiting market inefficiencies

Sharpe ratio

Jensen's α

Portfolio return decomposition



Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0●00

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary ○●○○

Investors exploiting market inefficiencies may generate higher returns

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0●00

- Investors exploiting market inefficiencies may generate higher returns
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0●00

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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 0●00

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| Exploiting market inefficiencies | Sharpe ratio
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Importance of risk adjustments

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- Higher returns might be associated with higher risks
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Exploiting market inefficiencies Sharpe ratio Jensen s α Portrolio return decomposition Summi	Sharpe ratio Jensen's α Portfolio return decomposition Summary
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Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 00●0

Adjusting returns with different risk measures can lead to different results

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 00●0

- ► Adjusting returns with different risk measures can lead to different results
- An investor might generate a high Jensen's α

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 00●0

- ► Adjusting returns with different risk measures can lead to different results
- An investor might generate a high Jensen's α
- ▶ The same investor might increase its idiosyncratic risk

Exploiting market inefficiencies	Sharpe ratio 0000	Jensen's α 0000	Portfolio return decomposition	Summary 00●0

- ► Adjusting returns with different risk measures can lead to different results
- > An investor might generate a high Jensen's α
- The same investor might increase its idiosyncratic risk and this can lead to a low performance if measured by the Sharpe ratio

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