

Statistica

2024-2025



Vincenzo Nardelli

vincenzo.nardelli@unicatt.it

Coding e Big Data

~~Statistica~~

~~2024-2025~~

2025-2026

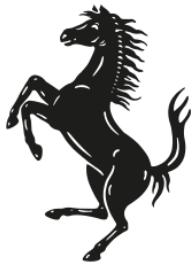


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LAB

Analisi Prezzi Azioni



Borsa di Milano

Posiz.	Titolo	Capitalizz. (ml. di euro)	Var.% a 12 mesi
1	Ferrari	79431,1	44,84 %
2	Enel	70709,3	25,23 %
3	Intesa Sanpaolo	68807,3	59,2 %
4	Unicredit	63547,4	63,08 %

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Analisi Prezzi Azioni



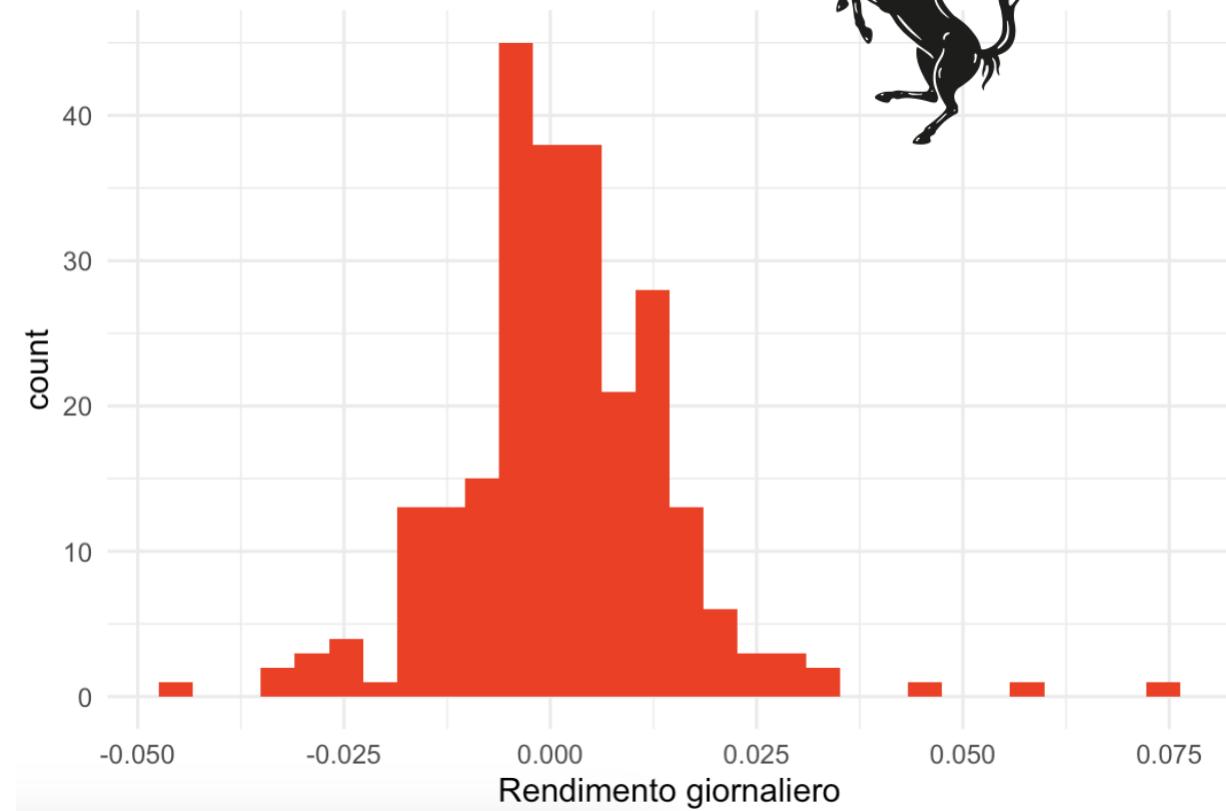
Rendimenti giornalieri del 2023

Ferrari	Enel	Intesa	Unicredit	day
0.0112855447	0.0352830395	0.0257767938	0.0373832821	1
-0.0009704035	-0.0016402659	-0.0060579085	0.0072071973	2
0.0145701161	0.0224535326	0.0083522229	0.0122470901	3
0.0339876198	-0.0003570954	-0.0022386944	-0.0067971441	4
-0.0115741190	-0.0112520855	0.0096478074	-0.0009581474	5

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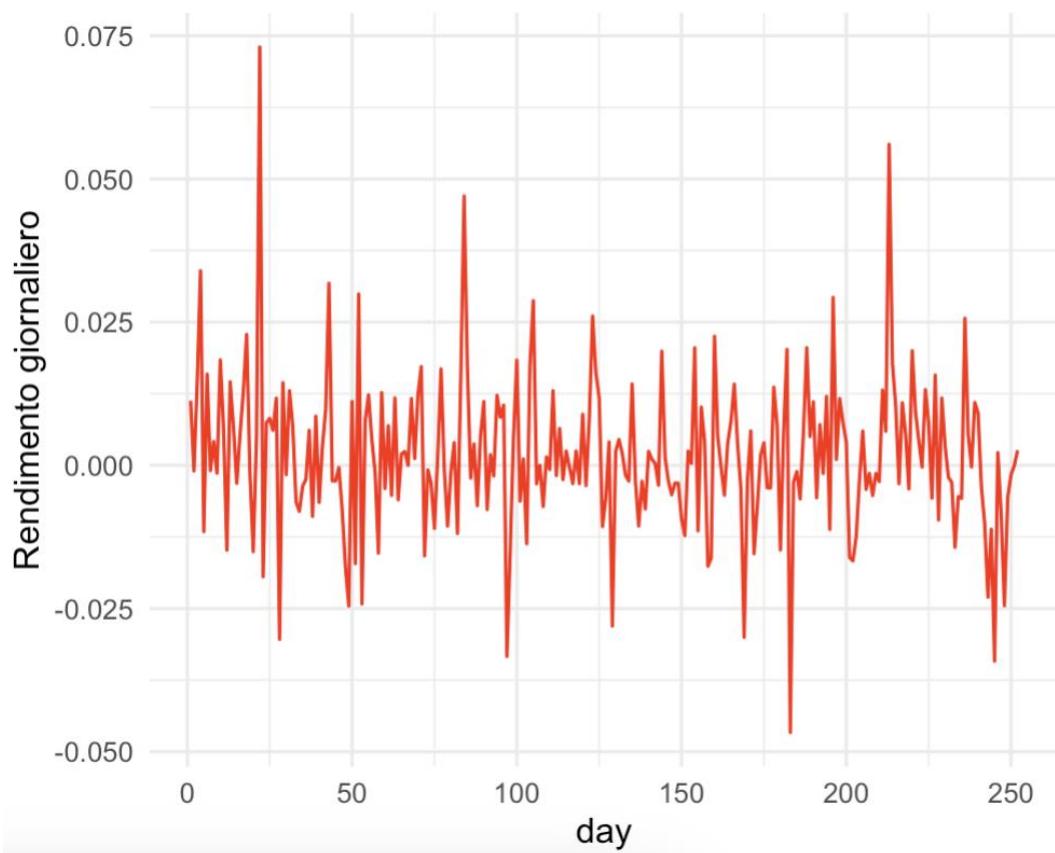
Analisi Prezzi Azioni - Frequenza

Rendimento Giornaliero	n	Percentuale
< -0.5%	64	25.4%
-0.5% - 0	59	23.4%
0 – 0.5%	38	15.1%
> 0.5%	91	36.1%

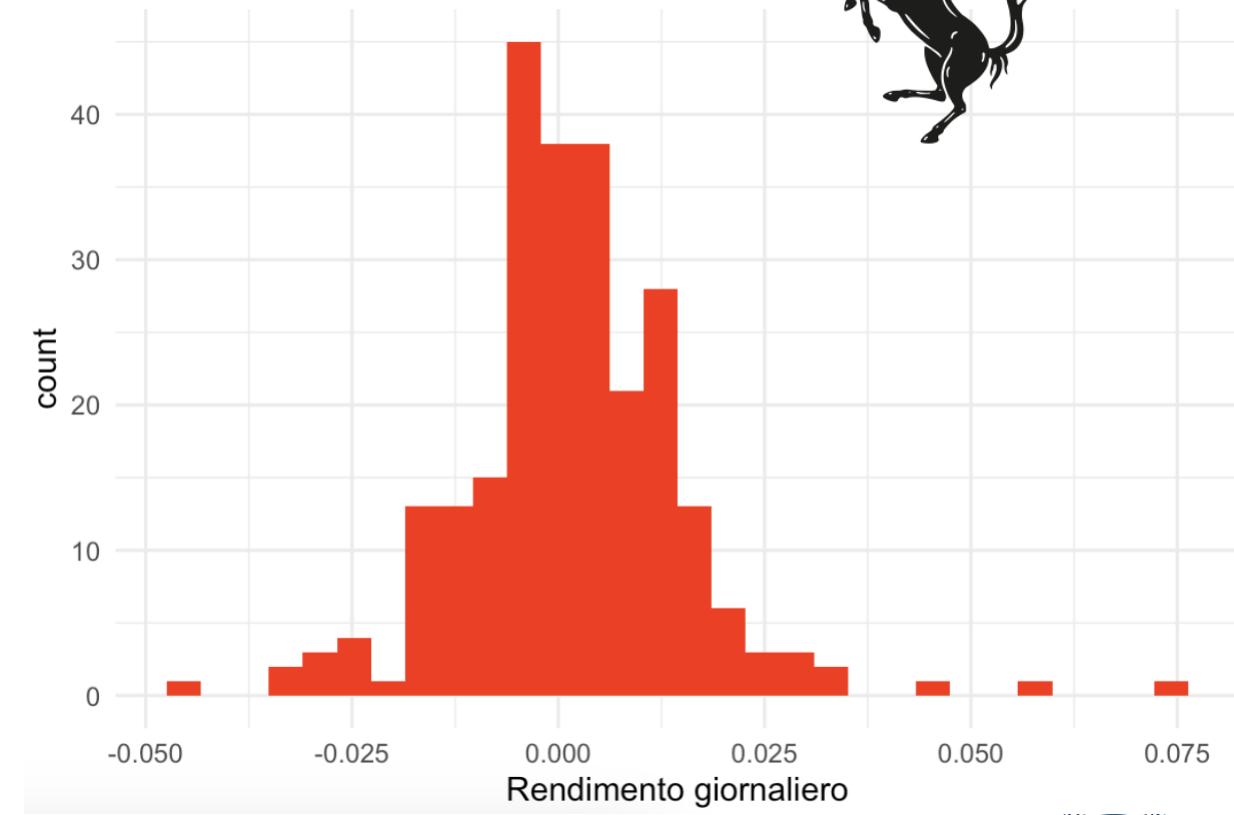


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Analisi Prezzi Azioni - Distribuzione

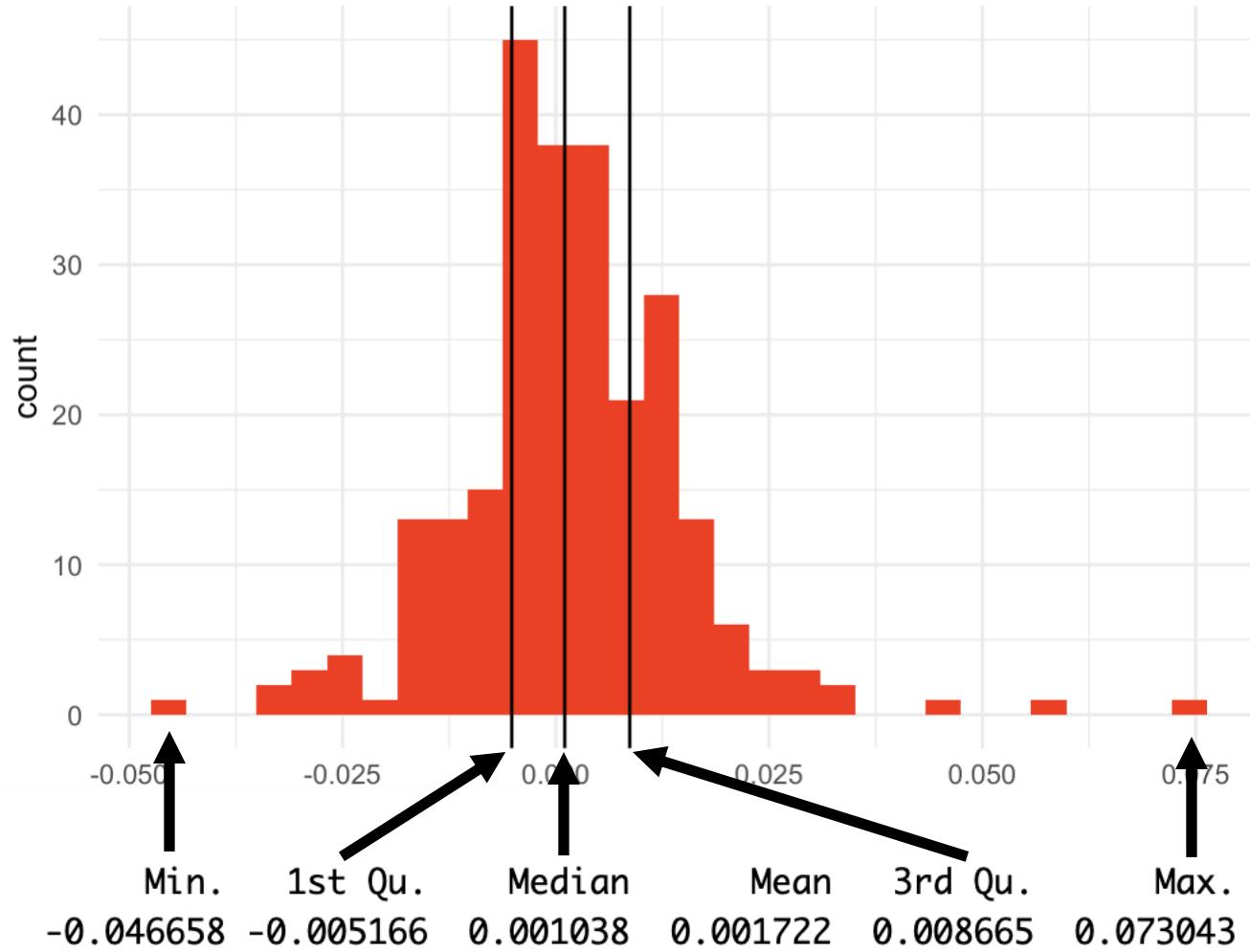


colour
— Ferrari

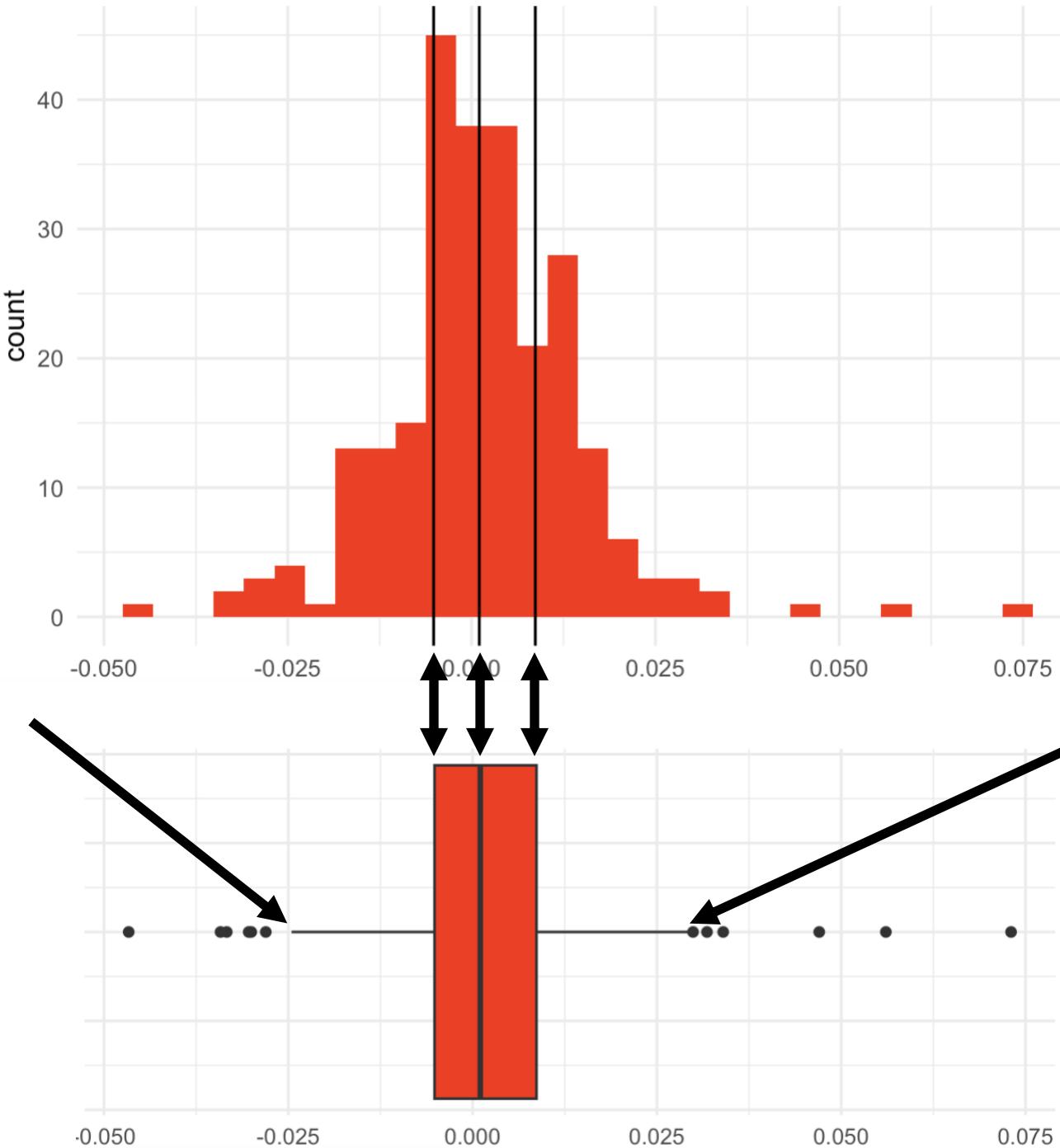


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Analisi Prezzi Azioni - Distribuzione



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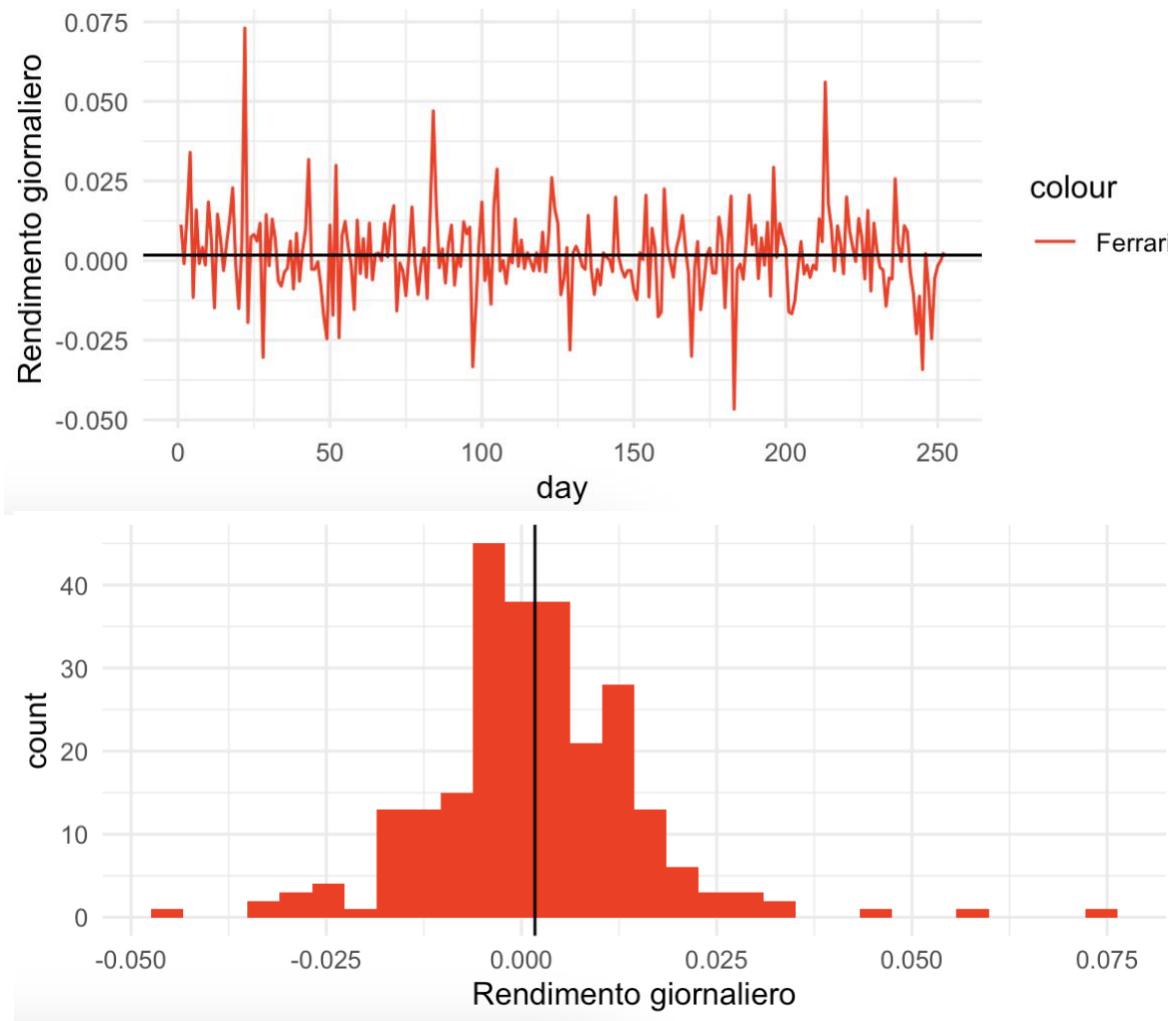


Q1-(1.5*IQR)

Q3+(1.5*IQR)

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Analisi Prezzi Azioni - Variabilità



Finanza: **Rischio**
Statistica: **Variabilità**



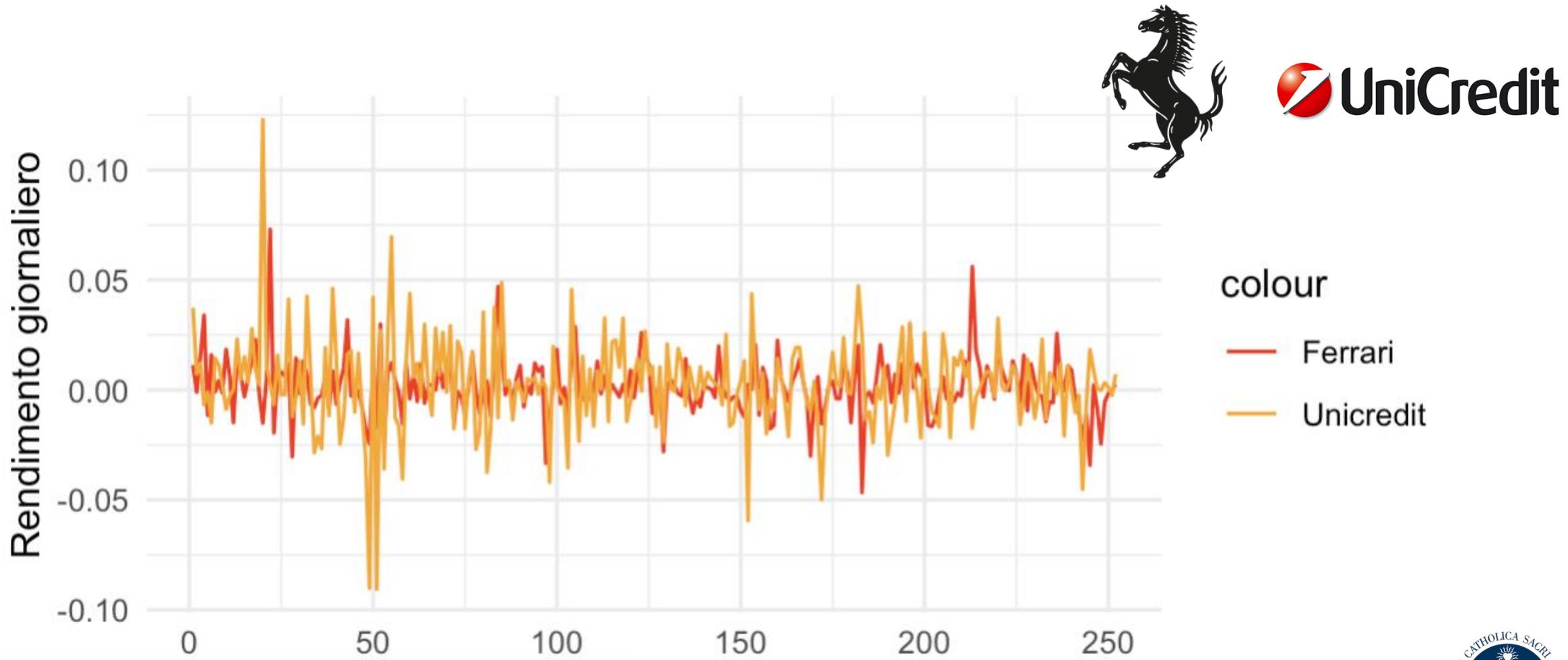
Dev. Std. 0.013

$$\sigma = \sqrt{\frac{\sum_{i=1}^N (x_i - \mu)^2}{N}}$$



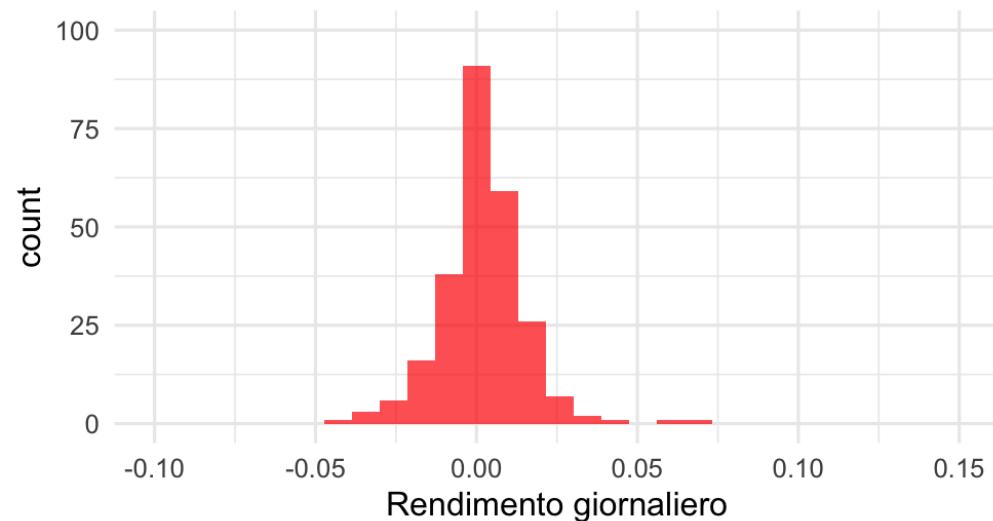
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Analisi Prezzi Azioni - Variabilità



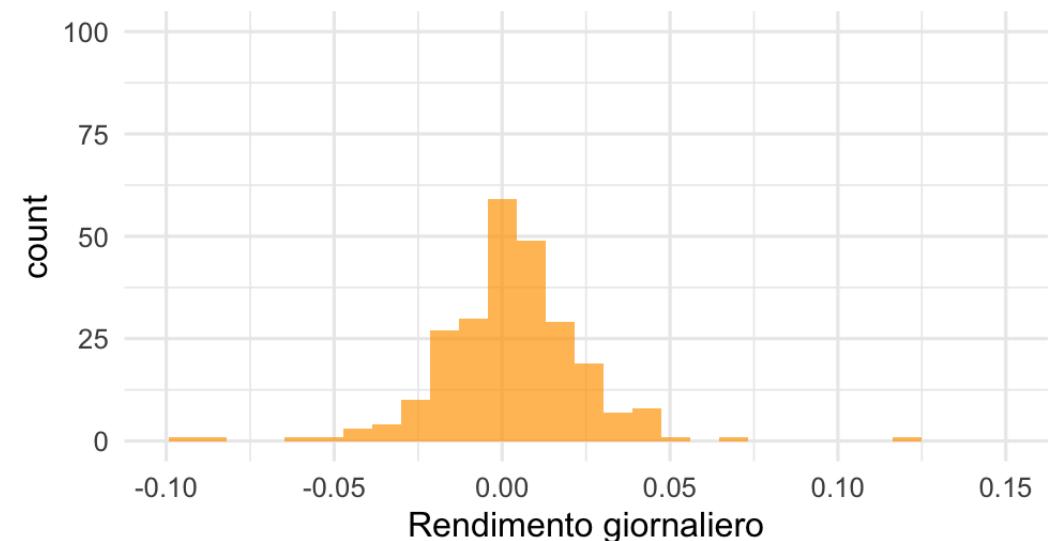
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Analisi Prezzi Azioni - Variabilità



Media: 0.17% - Dev. Std. 1.3%

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
-0.046658	-0.005166	0.001038	0.001722	0.008665	0.073043



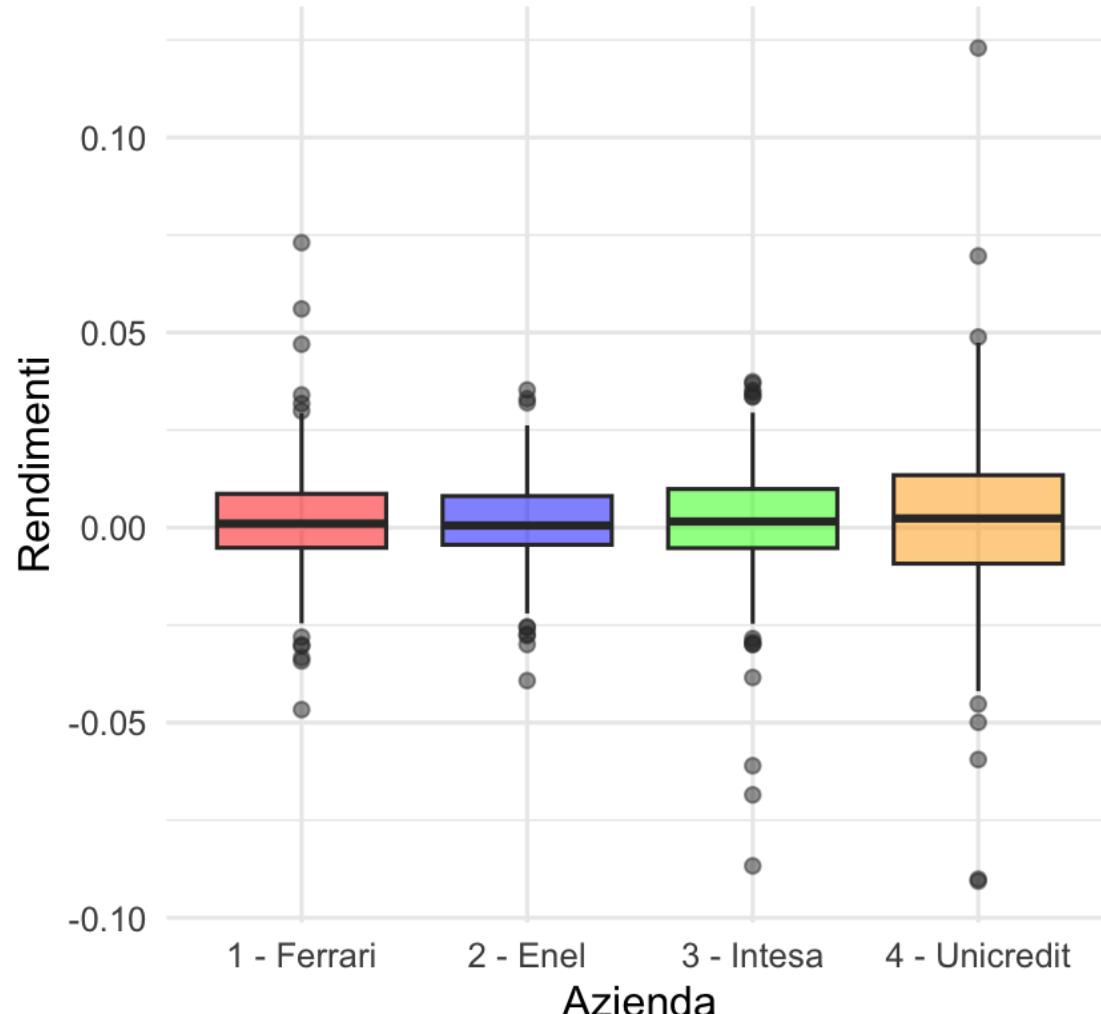
Media: 0.26% - Dev. Std. 2.1%

Min.	1st Qu.	Median	Mean	3rd Qu.	Max.
-0.090631	-0.009232	0.002348	0.002699	0.013447	0.122944

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Analisi Prezzi Azioni - Confronto

Confronto dei Boxplot



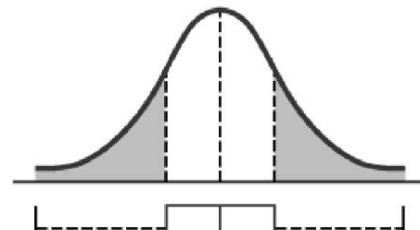
Azione	Media	Dev. Std.
Ferrari	0.17%	1.34%
Enel	0.12%	1.10%
Intesa	0.12%	1.50%
Unicredit	0.26%	2.16%

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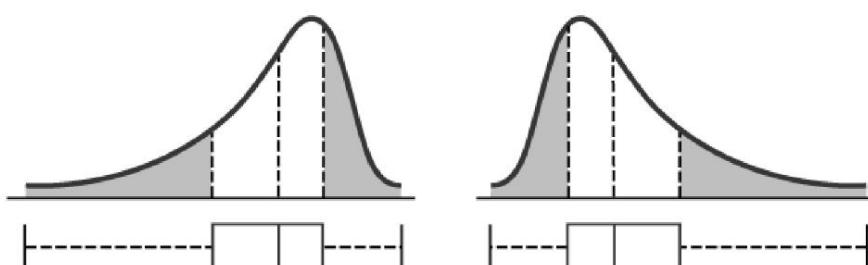
Analisi Prezzi Azioni - Forma

Quattro distribuzioni ipotetiche esaminate per mezzo del loro diagramma Box-Plot e dei corrispondenti poligoni.

Nota: l'area sottostante a ciascuna curva è divisa nei quartili corrispondenti ai cinque numeri di sintesi su cui si basa il Box-Plot



(a) Distribuzione simmetrica a campana



(b) Distribuzione obliqua a sinistra

Skewness negativa

(c) Distribuzione obliqua a destra

Skewness positiva



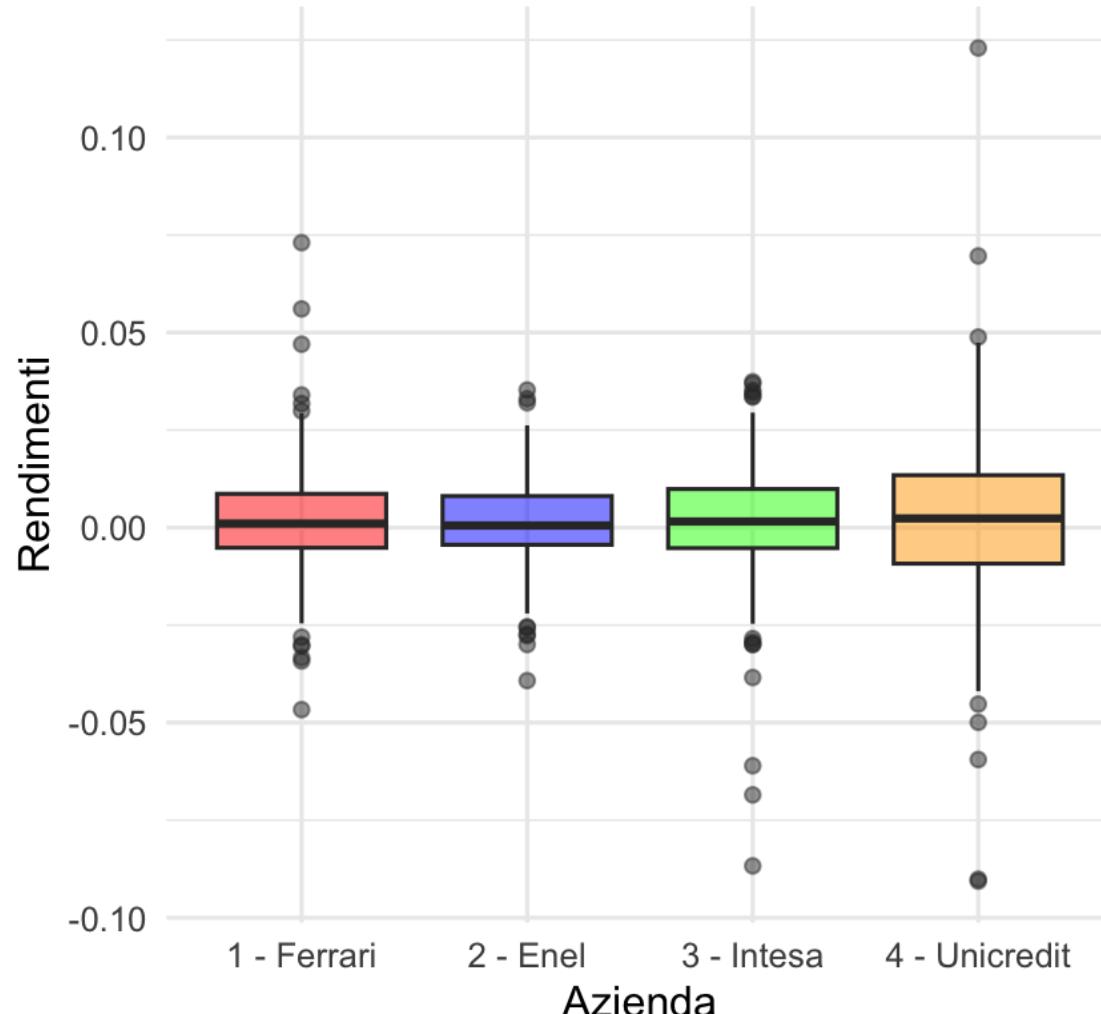
(d) Distribuzione uniforme (rettangolare)

$$SK = \frac{n}{(n-1)(n-2)} \cdot \sum_{i=1}^n \frac{(x_i - \bar{x})^3}{\sigma}$$

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Analisi Prezzi Azioni - Forma

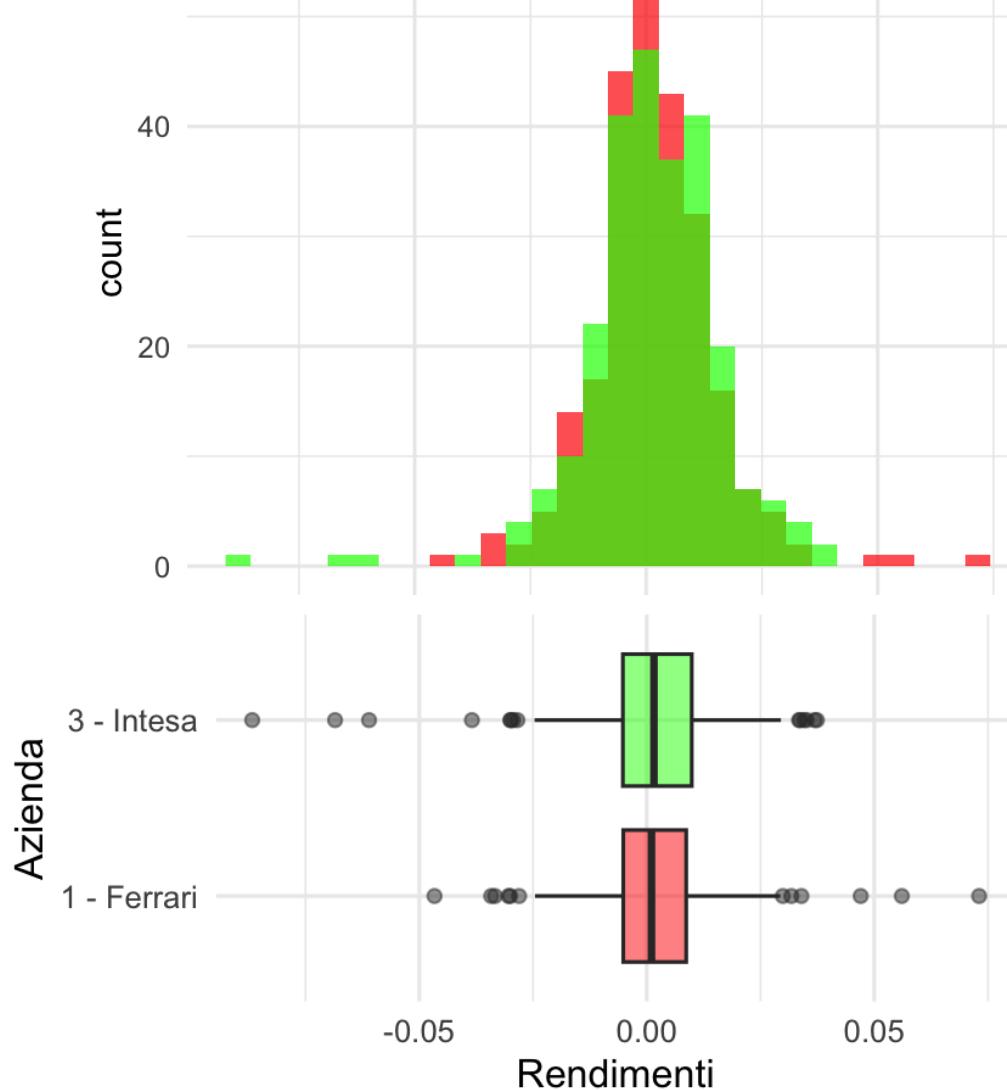
Confronto dei Boxplot



Azione	Media	Dev. Std.	Skewness
Ferrari	0.17%	1.34%	0.65
Enel	0.12%	1.10%	-0.23
Intesa	0.12%	1.50%	-1.34
Unicredit	0.26%	2.16%	0.11

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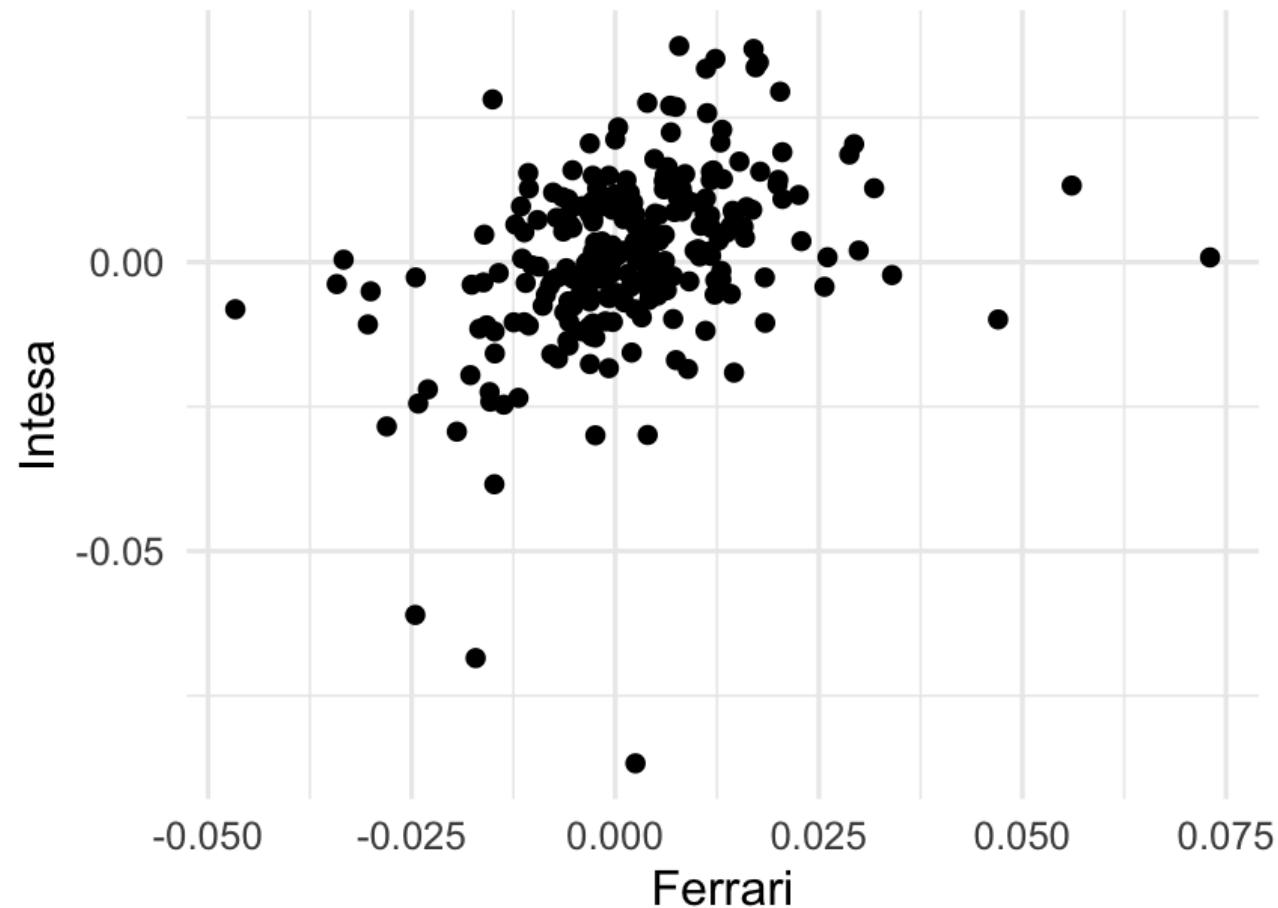
Analisi Prezzi Azioni - Forma



Azione	Media	Dev. Std.	Skewness
Ferrari	0.17%	1.34%	0.65
Intesa	0.12%	1.50%	-1.34

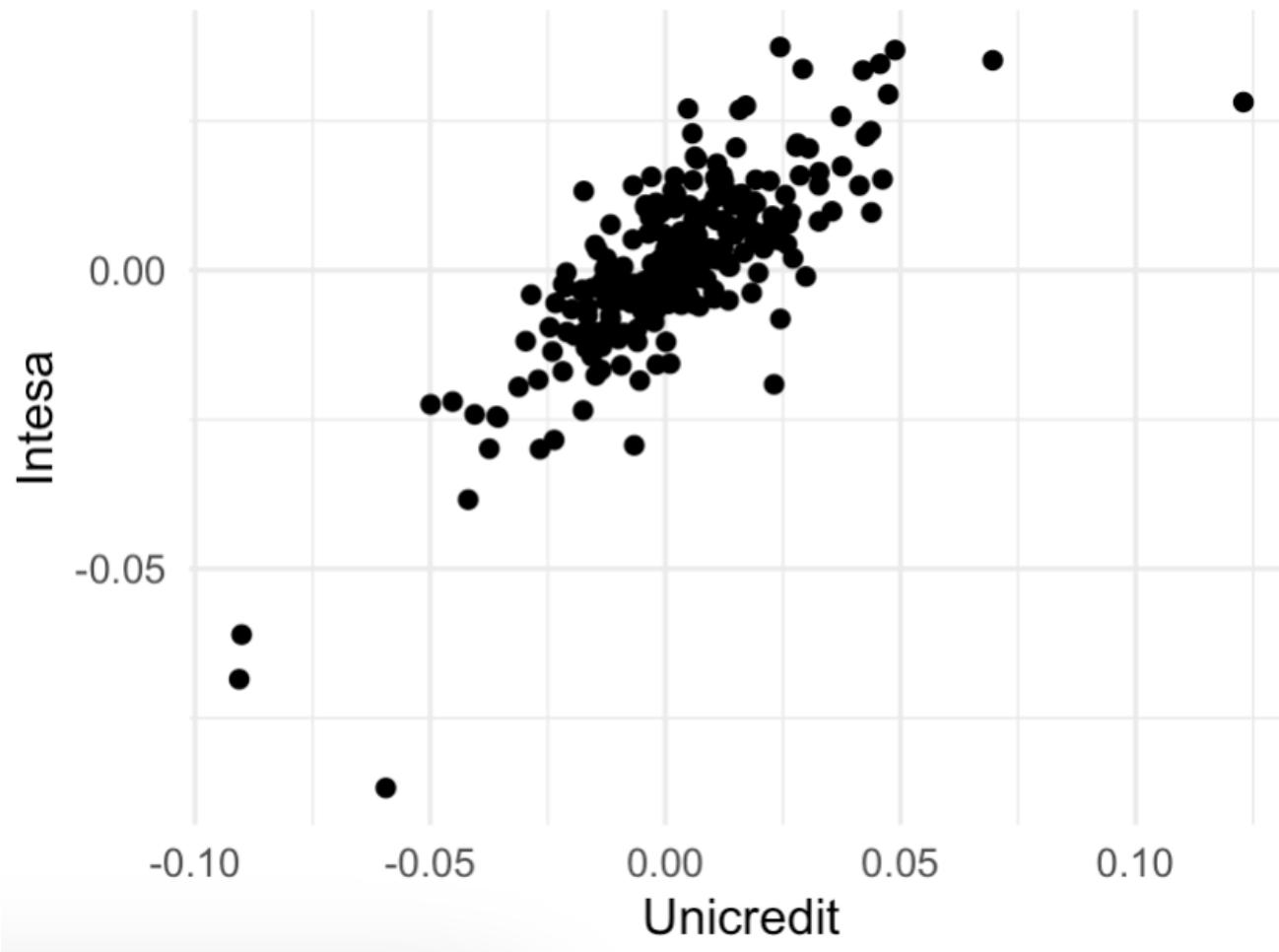
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Analisi Prezzi Azioni - Bivariata



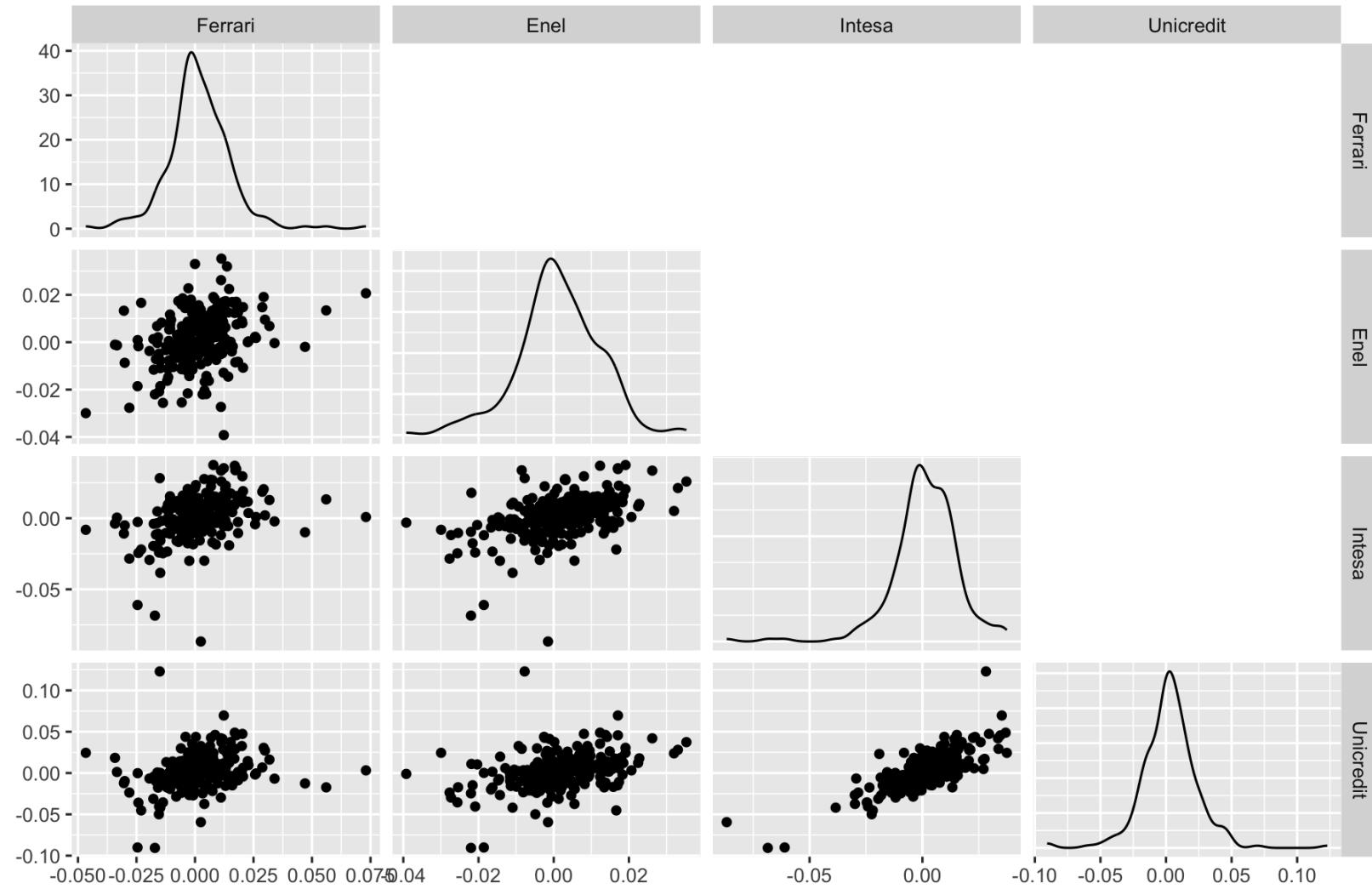
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Analisi Prezzi Azioni - Bivariata



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Analisi Prezzi Azioni - Bivariata



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Analisi Prezzi Azioni - Correlazione

Analisi Univariata

Varianza

$$\sigma^2 = \frac{\sum_{i=1}^N (x_i - \mu)^2}{N}$$

Analisi Bivariata

Covarianza

$$Cov(X, Y) = \frac{\sum_{i=1}^N ((x_i - \text{media}_X) \cdot (y_i - \text{media}_Y))}{N}$$

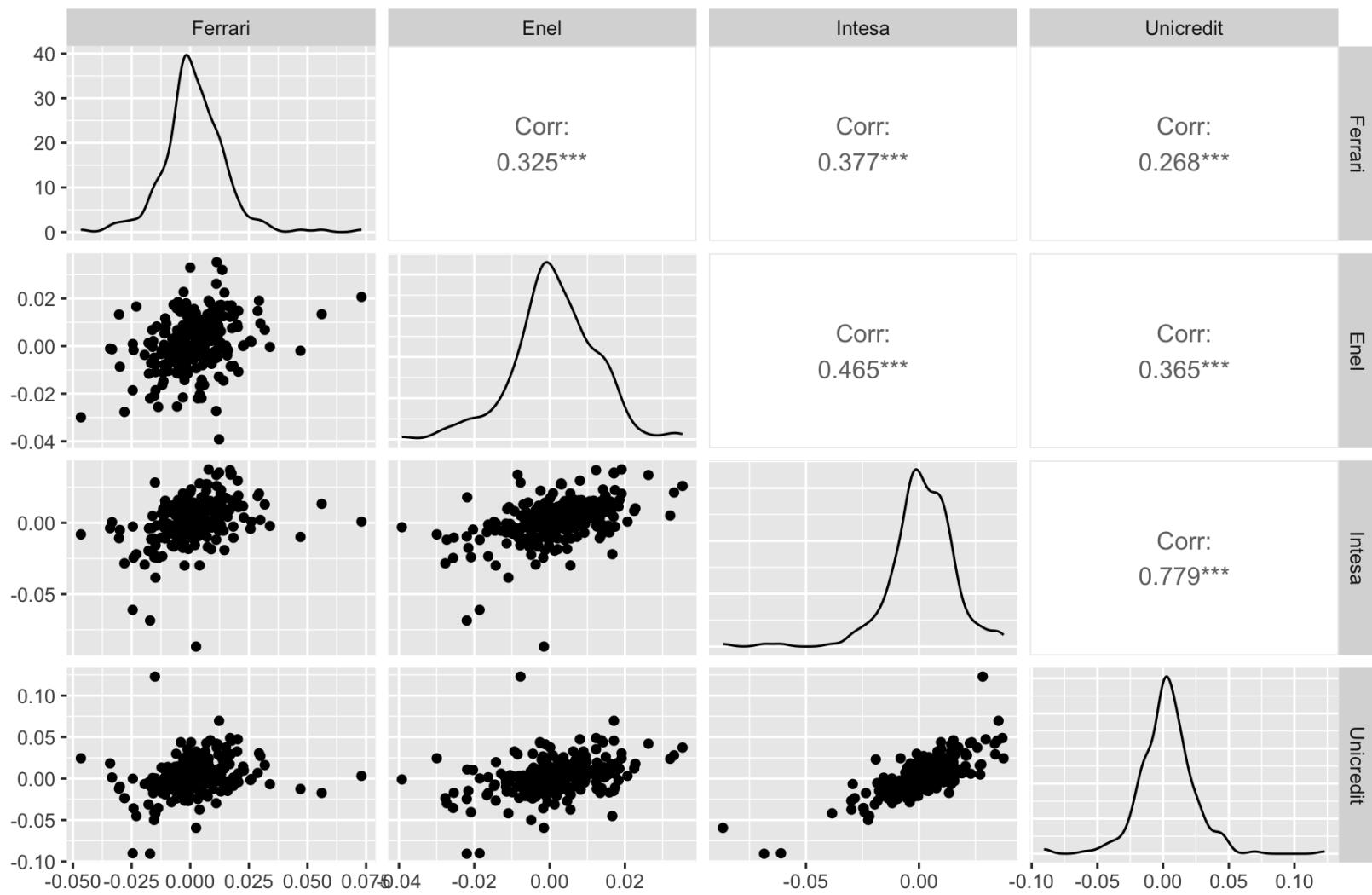
Correlazione

$$Corr(X, Y) = \frac{Cov(X, Y)}{\sqrt{Var(X)Var(Y)}}$$



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Analisi Prezzi Azioni - Correlazione



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Analisi Prezzi Azioni - Correlazione

	Ferrari	Enel	Intesa	Unicredit
Ferrari	1.00	0.32	0.38	0.27
Enel	0.32	1.00	0.47	0.37
Intesa	0.38	0.47	1.00	0.78
Unicredit	0.27	0.37	0.78	1.00

