→ Combine S_1 and S_2

$$d(S_1(t) + S_2(t)) = S_1(t)(4dt + dW_1(t) - dW_2(t))$$
$$+ S_2(t)(1dt - dW_1(t) + dW_2(t))$$
$$= S_1(t)\,4dt + S_2(t)\,1dt + S_1(t)(dW_1(t) - dW_2(t))$$
$$+ S_2(-dW_1(t) + dW_2(t))$$

→ Set $S_1(t) = S_2(t)$ ⟹ terms with $dW_1(t)$ and $dW_2(t)$ cancel
out

$$d(S_1(t) + S_2(t)) = S_1(t)\,4dt + S_2(t)\,1dt$$

⟹ change of value is deterministic

→ Arbitray - Strategy: Let $S_1(0) = S_2(0) = S$

⟹ portfolio at time $t = 0$:

$$\varphi = \begin{cases} -2S \\ S \\ S \end{cases} \qquad ⟹ V_0 = 0$$

→ at time $t > 0$

$$\varphi = \begin{cases} -2S \\ S \\ S \end{cases} \qquad ⟹ V_{t>0} > 0 \qquad \text{, because the "debt"}$$
of from S_0 stays constant
because S_0 is fixed and
the value of holding S_1 and S_2
increase deterministacly as shown above.

⟹ We start with 0 capital ($V_0 = 0$) and are
guaranteed to ~~the~~ make money ($V_{t>0} > 0$, with
$P(V_{t>0} > 0) > 0$) because the value of the stocks in-
crease deterministically, which constitates arbitrage