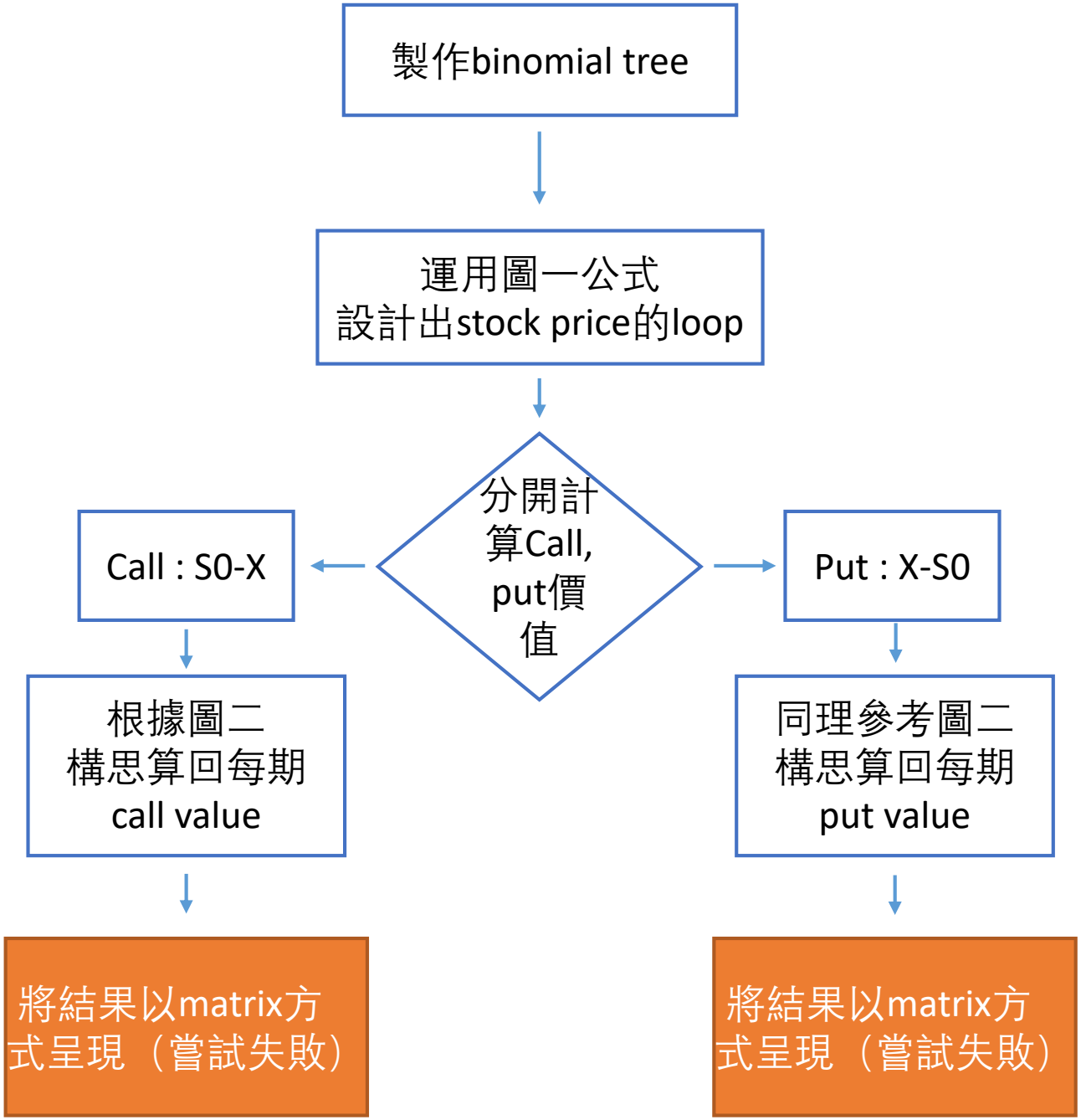

製作binomial tree
運用圖一公式
設計出stock price的loop
分開計
算Call,
put價
值
Call : S0-X
Put : X-S0
根據圖二
構思算回每期
call value
同理參考圖二
構思算回每期
put value
將結果以matrix方
式呈現（嘗試失敗）
將結果以matrix方
式呈現（嘗試失敗）

圖一

$$C_u = \frac{pC_{uu} + (1-p)C_{ud}}{R}$$

$$C_d = \frac{pC_{ud} + (1-p)C_{dd}}{R}$$

$S_0 u^{i-j} d^j$

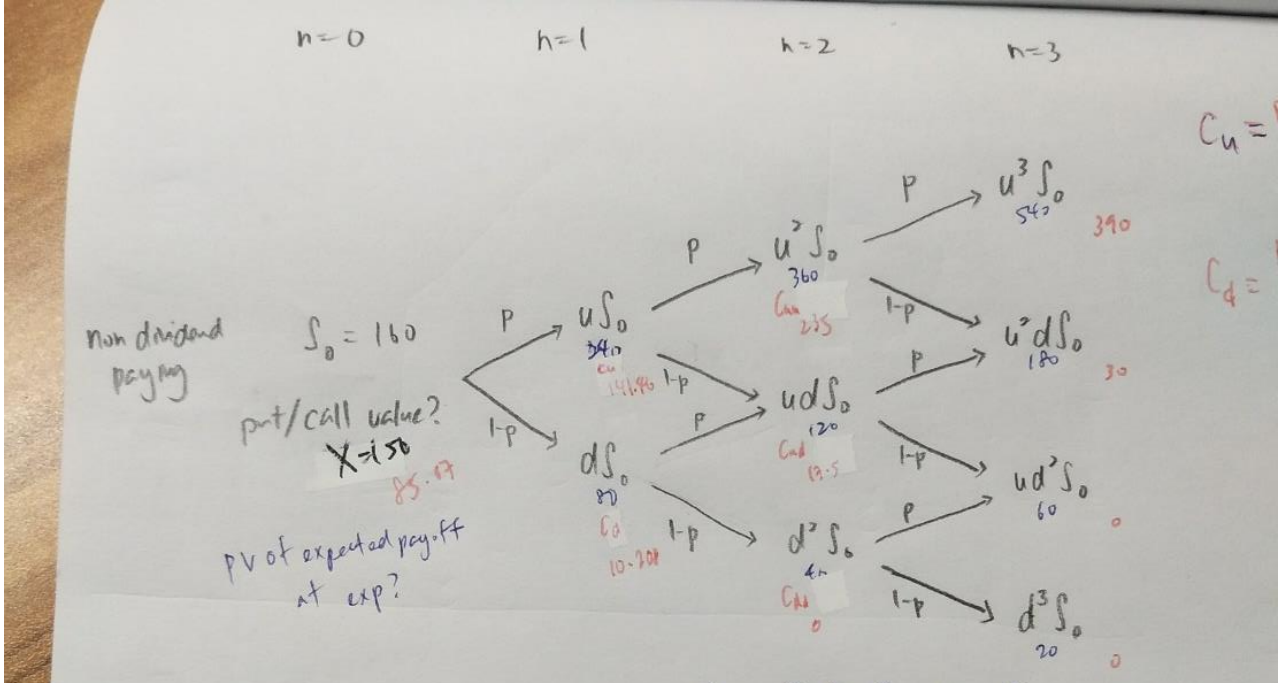
$i=1, j=0$ uS_0

$i=1, j=1$ dS_0

$i=2, j=0$ $u^2 S_0$

$j=1$ udS_0

$j=2$ $d^2 S_0$


n=0
n=1
n=2
n=3
non dividend paying
$S_0 = 160$
put/call value?
X=150
pv of expected payoff at exp?
P
1-P
uS_0
dS_0
u^2S_0
udS_0
d^2S_0
u^3S_0
u^2dS_0
ud^2S_0
d^3S_0
360
120
80
540
180
60
20
390
30
0
0
$C_u =$
$C_d =$
$p\,uS_0 + (1-p)\,dS_0 = S_0 e^{rT}$
$C_0 = e^{-rT}[pC_u + (1-p)C_d]$
$C + Xe^{-rT} = P + S$
u=1.5
d=0.5
r=18.232% per period
$p = \frac{e^{rT}-d}{u-d}$
$p = \frac{R-d}{u-d} = 0.7$
X=150
$C = max(0, S-X)$
$P = max(0, X-S)$
C_0
$C_u = max(0, uS_0-k)$
$C_d = max(0, dS_0-k)$
estimate
k: strike

圖二