

LAMPIRAN

Program perhitungan harga saham di semua titik, nilai intrinsik dan nilai *American call option* dengan software Matlab

```
clear all;
clc;

S=input('Masukkan harga saham awal: ');
X=input('Masukkan strike price: ');
r=input('Masukkan suku bunga bebas resiko: ');
T=input('Masukkan waktu jatuh tempo: ');
M=input('Masukkan partisi waktu: ');
g=input('Masukkan volatilitas: ');

dt=T/M;
B=exp(-r*dt)+exp((r+g^2)*dt);
u=(B+sqrt(B^2-4))/2;
d=1/u;
p=(exp(r*dt)-d)/(u-d);
a=exp(-r*dt);
C=zeros(M+1,M+1);

%Menghitung harga saham pada saat jatuh tempo
for i=1:M+1
    for j=1:i
        if i==1
            C(j,i)=S;
        else
            for j=1:i
                C(j,i)=S*u^(j-1)*d^(i-j);
            end
        end
    end
end
V=zeros(M+1,M+1);
```

```
%Menghitung nilai intrinsik  
for i=1:M+1  
    for j=1:i  
        V(j,i)=max(C(j,i)-X,0);  
    end  
end  
F=zeros(M+1,M+1);
```

```
%Menghitung American Call option  
for i=M+1:-1:1  
    for j=1:i  
        if i==(M+1)  
            F(j,i)=V(j,i);  
        else  
            F(j,i)=max(V(j,i),exp(-r*dt)*(p*F(j+1,i+1)+(1-p)*F(j,i+1)));  
        end  
    end  
end
```

```
figure(1)  
plot(C,'*b','markerSize',10,'LineWidth',2)  
grid on  
hold on  
  
xlabel('Banyak partisi')  
ylabel('Harga Saham')
```

```
figure(2)  
plot(V,'*b','markerSize',10,'LineWidth',2)  
grid on  
hold on  
  
xlabel('Banyak partisi')  
ylabel('Nilai intrinsik')
```

```
figure(3)
plot(F', '*b', 'markerSize', 10, 'LineWidth', 2)
grid on
hold on

xlabel('Banyak partisi')
ylabel('Nilai opsi')
```

C
V
F



UNIVERSITAS BRAWIJAYA

