

CVA

October 4, 2016

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In [1]: from BSDE import *
import warnings
warnings.filterwarnings("ignore")

In [2]: from BSDE import *
T = 4
m = 6
K = 100.
r = 0.
S_init = 1.
mu = 0.
sigma = 0.2
N = 10000
Q = 0.
RF_n_trees = 100
RF_max_leaf_nodes = 50
beta = 0.01
#test_hd = BsdeHD(T, K, M, mu, Q, sigma, S_init, r, R)
#res = test_hd.labordere(N,m,RF_n_trees, RF_max_leaf_nodes)
#print(res)

a = np.zeros(10)
for i in range(10):
    test = BSDE(S_init, K, T, mu, sigma, Q)
    a[i] = test.get_cva(N, m, r, RF_n_trees, RF_max_leaf_nodes, beta)

min_a = min(a)
max_a = max(a)
mean_a = np.mean(a)
std_a = np.std(a)
print ("mean = " + str(mean_a))
print ("std = " + str(std_a))
print ("min = " + str(min_a))
print ("max = " + str(max_a))

mean = 0.168214891559
std = 0.00779192026645
min = 0.151941350495
max = 0.178818855027

In [3]: from BSDE import *
T = 2
m = 6
K = 100.
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r = 0.
S_init = 1.
mu = 0.
sigma = 0.2
N = 10000
Q = 0.
RF_n_trees = 100
RF_max_leaf_nodes = 50
beta = 0.01
#test_hd = BsdeHD(T, K, M, mu, Q, sigma, S_init, r, R)
#res = test_hd.labordere(N,m,RF_n_trees, RF_max_leaf_nodes)
#print(res)

a = np.zeros(10)
for i in range (10):
    test = BSDE(S_init, K, T, mu, sigma, Q)
    a[i] = test.get_cva(N, m, r, RF_n_trees, RF_max_leaf_nodes, beta)

min_a = min(a)
max_a = max(a)
mean_a = np.mean(a)
std_a = np.std(a)
print ("mean = " + str(mean_a))
print ("std = " + str(std_a))
print ("min = " + str(min_a))
print ("max = " + str(max_a))

mean = 0.117524396982
std = 0.009664594477
min = 0.10467558173
max = 0.129895567679

In [4]: from BSDE import *
T = 6
m = 6
K = 100.
r = 0.
S_init = 1.
mu = 0.
sigma = 0.2
N = 10000
Q = 0.
RF_n_trees = 100
RF_max_leaf_nodes = 50
beta = 0.01
#test_hd = BsdeHD(T, K, M, mu, Q, sigma, S_init, r, R)
#res = test_hd.labordere(N,m,RF_n_trees, RF_max_leaf_nodes)
#print(res)

a = np.zeros(10)
for i in range (10):
    test = BSDE(S_init, K, T, mu, sigma, Q)
    a[i] = test.get_cva(N, m, r, RF_n_trees, RF_max_leaf_nodes, beta)

min_a = min(a)

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max_a = max(a)
mean_a = np.mean(a)
std_a = np.std(a)
print ("mean = " + str(mean_a))
print ("std = " + str(std_a))
print ("min = " + str(min_a))
print ("max = " + str(max_a))

mean = 0.202358045936
std = 0.00680115259335
min = 0.191417668007
max = 0.212868488177

In [5]: from BSDE import *
        T = 8
        m = 6
        K = 100.
        r = 0.
        S_init = 1.
        mu = 0.
        sigma = 0.2
        N = 10000
        Q = 0.
        RF_n_trees = 100
        RF_max_leaf_nodes = 50
        beta = 0.01
        #test_hd = BsdeHD(T, K, M, mu, Q, sigma, S_init, r, R)
        #res = test_hd.labordere(N,m,RF_n_trees, RF_max_leaf_nodes)
        #print(res)

        a = np.zeros(10)
        for i in range (10):
            test = BSDE(S_init, K, T, mu, sigma, Q)
            a[i] = test.get_cva(N, m, r, RF_n_trees, RF_max_leaf_nodes, beta)

        min_a = min(a)
        max_a = max(a)
        mean_a = np.mean(a)
        std_a = np.std(a)
        print ("mean = " + str(mean_a))
        print ("std = " + str(std_a))
        print ("min = " + str(min_a))
        print ("max = " + str(max_a))

mean = 0.230072014171
std = 0.00813789155033
min = 0.21822004754
max = 0.247367861044

In [7]: from BSDE import *
        T = 10
        m = 6
        K = 100.
        r = 0.
        S_init = 1.

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mu = 0.
sigma = 0.2
N = 10000
Q = 0.
RF_n_trees = 100
RF_max_leaf_nodes = 50
beta = 0.01
#test_hd = BsdeHD(T, K, M, mu, Q, sigma, S_init, r, R)
#res = test_hd.labordere(N,m,RF_n_trees, RF_max_leaf_nodes)
#print(res)

a = np.zeros(20)
for i in range (20):
    test = BSDE(S_init, K, T, mu, sigma, Q)
    a[i] = test.get_cva(N, m, r, RF_n_trees, RF_max_leaf_nodes, beta)

min_a = min(a)
max_a = max(a)
mean_a = np.mean(a)
std_a = np.std(a)
print ("mean = " + str(mean_a))
print ("std = " + str(std_a))
print ("min = " + str(min_a))
print ("max = " + str(max_a))

mean = 0.256962996095
std = 0.00576221696682
min = 0.242112789935
max = 0.266113750965

In [ ]:

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