============Start Ensemble Strategy============

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======Model training from: 20090000 to 20151002

======A2C Training========

Training time (A2C): 0.7008586208025614 minutes

======A2C Validation from: 20151002 to 20160104

A2C Sharpe Ratio: 0.06428951539930403

======PPO Training========

Training time (PPO): 2.1964466611544293 minutes

======PPO Validation from: 20151002 to 20160104

PPO Sharpe Ratio: -0.1791801817011159

======DDPG Training========

Training time (DDPG): 0.4343711495399475 minutes

======DDPG Validation from: 20151002 to 20160104

======Trading from: 20160104 to 20160405

previous\_total\_asset:1000000

end\_total\_asset:1000142.5510956027

total\_reward:142.55109560268465

total\_cost: 121.06437598926541

total trades: 31

Sharpe: 0.05263265497680663

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======Model training from: 20090000 to 20160104

======A2C Training========

Training time (A2C): 0.685010019938151 minutes

======A2C Validation from: 20160104 to 20160405

A2C Sharpe Ratio: 0.43671708273476434

======PPO Training========

Training time (PPO): 2.21797864039739 minutes

======PPO Validation from: 20160104 to 20160405

PPO Sharpe Ratio: 0.4179226913798699

======DDPG Training========

Training time (DDPG): 0.43750289678573606 minutes

======DDPG Validation from: 20160104 to 20160405

======Trading from: 20160405 to 20160705

previous\_total\_asset:999442.2789042385

end\_total\_asset:1000515.9250733025

total\_reward:1073.6461690639844

total\_cost: 63.727236231794365

total trades: 22

Sharpe: 0.29697189118317563

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======Model training from: 20090000 to 20160405

======A2C Training========

Training time (A2C): 0.6578885674476623 minutes

======A2C Validation from: 20160405 to 20160705

A2C Sharpe Ratio: -0.16442648071384022

======PPO Training========

Training time (PPO): 2.2060532728830973 minutes

======PPO Validation from: 20160405 to 20160705

PPO Sharpe Ratio: -0.1722600166275867

======DDPG Training========

Training time (DDPG): 0.4347357710202535 minutes

======DDPG Validation from: 20160405 to 20160705

======Trading from: 20160705 to 20161003

previous\_total\_asset:1000782.146980207

end\_total\_asset:1000343.8642479366

total\_reward:-438.28273227030877

total\_cost: 59.25628440164566

total trades: 17

Sharpe: -0.18626483503434058

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======Model training from: 20090000 to 20160705

======A2C Training========

Training time (A2C): 0.6574415842692057 minutes

======A2C Validation from: 20160705 to 20161003

A2C Sharpe Ratio: -0.07421178660402172

======PPO Training========

Training time (PPO): 2.2010157704353333 minutes

======PPO Validation from: 20160705 to 20161003

PPO Sharpe Ratio: -0.0868207418206145

======DDPG Training========

Training time (DDPG): 0.4395253578821818 minutes

======DDPG Validation from: 20160705 to 20161003

======Trading from: 20161003 to 20170103

previous\_total\_asset:1000782.146980207

end\_total\_asset:1000782.146980207

total\_reward:0.0

total\_cost: 0

total trades: 0

Sharpe: nan

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======Model training from: 20090000 to 20161003

======A2C Training========

Training time (A2C): 0.6620022257169088 minutes

======A2C Validation from: 20161003 to 20170103

A2C Sharpe Ratio: 0.42164569315453276

======PPO Training========

Training time (PPO): 2.211927100022634 minutes

======PPO Validation from: 20161003 to 20170103

PPO Sharpe Ratio: 0.22457199670001957

======DDPG Training========

Training time (DDPG): 0.5226535240809123 minutes

======DDPG Validation from: 20161003 to 20170103

======Trading from: 20170103 to 20170404

previous\_total\_asset:1000782.146980207

end\_total\_asset:1000964.1140504277

total\_reward:181.9670702207368

total\_cost: 123.29969519687533

total trades: 38

Sharpe: 0.07342947883623795

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======Model training from: 20090000 to 20170103

======A2C Training========

Training time (A2C): 0.6385181625684102 minutes

======A2C Validation from: 20170103 to 20170404

A2C Sharpe Ratio: 0.004077740845953927

======PPO Training========

Training time (PPO): 2.141772218545278 minutes

======PPO Validation from: 20170103 to 20170404

PPO Sharpe Ratio: 0.011048931325571772

======DDPG Training========

Training time (DDPG): 0.42508488496144614 minutes

======DDPG Validation from: 20170103 to 20170404

======Trading from: 20170404 to 20170705

previous\_total\_asset:1000677.5003619615

end\_total\_asset:1000677.5003619615

total\_reward:0.0

total\_cost: 0

total trades: 0

Sharpe: nan

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======Model training from: 20090000 to 20170404

======A2C Training========

Training time (A2C): 0.6284514824549358 minutes

======A2C Validation from: 20170404 to 20170705

A2C Sharpe Ratio: 0.20366620093607146

======PPO Training========

Training time (PPO): 2.1264772017796836 minutes

======PPO Validation from: 20170404 to 20170705

PPO Sharpe Ratio: 0.8229820565689085

======DDPG Training========

Training time (DDPG): 0.4281576037406921 minutes

======DDPG Validation from: 20170404 to 20170705

======Trading from: 20170705 to 20171003

previous\_total\_asset:1000677.5003619615

end\_total\_asset:1015676.6962430038

total\_reward:14999.19588104228

total\_cost: 386.0961562541866

total trades: 52

Sharpe: 0.4713505722119912

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======Model training from: 20090000 to 20170705

======A2C Training========

Training time (A2C): 0.6285140156745911 minutes

======A2C Validation from: 20170705 to 20171003

A2C Sharpe Ratio: 0.47207180693822637

======PPO Training========

Training time (PPO): 2.119097904364268 minutes

======PPO Validation from: 20170705 to 20171003

PPO Sharpe Ratio: 0.03213879263508197

======DDPG Training========

Training time (DDPG): 0.4260245164235433 minutes

======DDPG Validation from: 20170705 to 20171003

======Trading from: 20171003 to 20180103

previous\_total\_asset:1000679.3152063803

end\_total\_asset:1027352.6777766317

total\_reward:26673.36257025134

total\_cost: 499.23600000000016

total trades: 52

Sharpe: 0.3713409283481835

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======Model training from: 20090000 to 20171003

======A2C Training========

Training time (A2C): 0.6308886408805847 minutes

======A2C Validation from: 20171003 to 20180103

A2C Sharpe Ratio: 0.27017806332062366

======PPO Training========

Training time (PPO): 2.1253602504730225 minutes

======PPO Validation from: 20171003 to 20180103

PPO Sharpe Ratio: 0.25481059086105684

======DDPG Training========

Training time (DDPG): 0.42294989426930746 minutes

======DDPG Validation from: 20171003 to 20180103

======Trading from: 20180103 to 20180405

previous\_total\_asset:1010801.1542097067

end\_total\_asset:999904.314195843

total\_reward:-10896.840013863752

total\_cost: 372.19063036606775

total trades: 52

Sharpe: -0.05947008774322903

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======Model training from: 20090000 to 20180103

======A2C Training========

Training time (A2C): 0.6302610834439596 minutes

======A2C Validation from: 20180103 to 20180405

A2C Sharpe Ratio: -0.10723458664057559

======PPO Training========

Training time (PPO): 2.1171369989713034 minutes

======PPO Validation from: 20180103 to 20180405

PPO Sharpe Ratio: -0.0865434038333214

======DDPG Training========

Training time (DDPG): 0.41998661756515504 minutes

======DDPG Validation from: 20180103 to 20180405

======Trading from: 20180405 to 20180705

previous\_total\_asset:1019183.6761163122

end\_total\_asset:1005915.4888709344

total\_reward:-13268.187245377805

total\_cost: 445.9635927861022

total trades: 52

Sharpe: -0.0991143493148295

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======Model training from: 20090000 to 20180405

======A2C Training========

Training time (A2C): 0.6285821239153544 minutes

======A2C Validation from: 20180405 to 20180705

A2C Sharpe Ratio: -0.1256911068236368

======PPO Training========

Training time (PPO): 2.1154956738154094 minutes

======PPO Validation from: 20180405 to 20180705

PPO Sharpe Ratio: -0.1252029275954258

======DDPG Training========

Training time (DDPG): 0.4260106166203817 minutes

======DDPG Validation from: 20180405 to 20180705

======Trading from: 20180705 to 20181003

previous\_total\_asset:1012651.460418215

end\_total\_asset:1067455.1044916806

total\_reward:54803.644073465606

total\_cost: 545.9629025668333

total trades: 52

Sharpe: 0.372016520725114

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======Model training from: 20090000 to 20180705

======A2C Training========

Training time (A2C): 0.625534737110138 minutes

======A2C Validation from: 20180705 to 20181003

A2C Sharpe Ratio: -0.02796015004497829

======PPO Training========

Training time (PPO): 2.1101062337557477 minutes

======PPO Validation from: 20180705 to 20181003

PPO Sharpe Ratio: -0.06952107067538027

======DDPG Training========

Training time (DDPG): 0.4245731631914775 minutes

======DDPG Validation from: 20180705 to 20181003

======Trading from: 20181003 to 20190104

previous\_total\_asset:1017169.4185238436

end\_total\_asset:933454.7461452709

total\_reward:-83714.67237857275

total\_cost: 541.9049959798431

total trades: 52

Sharpe: -0.1985739721085302

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======Model training from: 20090000 to 20181003

======A2C Training========

Training time (A2C): 0.6251178781191508 minutes

======A2C Validation from: 20181003 to 20190104

A2C Sharpe Ratio: -0.315701944480888

======PPO Training========

Training time (PPO): 2.1037461439768474 minutes

======PPO Validation from: 20181003 to 20190104

PPO Sharpe Ratio: -0.31646801909272376

======DDPG Training========

Training time (DDPG): 0.42826475699742633 minutes

======DDPG Validation from: 20181003 to 20190104

======Trading from: 20190104 to 20190405

previous\_total\_asset:1027711.1574349644

end\_total\_asset:1086723.4546945754

total\_reward:59012.29725961096

total\_cost: 514.051668201418

total trades: 52

Sharpe: 0.2993859844698497

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======Model training from: 20090000 to 20190104

======A2C Training========

Training time (A2C): 0.6214003920555115 minutes

======A2C Validation from: 20190104 to 20190405

A2C Sharpe Ratio: 0.2263765764513504

======PPO Training========

Training time (PPO): 2.109876195589701 minutes

======PPO Validation from: 20190104 to 20190405

PPO Sharpe Ratio: 0.13516537682607585

======DDPG Training========

Training time (DDPG): 0.42249718904495237 minutes

======DDPG Validation from: 20190104 to 20190405

======Trading from: 20190405 to 20190708

previous\_total\_asset:1035034.3706885979

end\_total\_asset:1194139.7047239898

total\_reward:159105.33403539192

total\_cost: 330.99471154672625

total trades: 52

Sharpe: 0.46880977976733623

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======Model training from: 20090000 to 20190405

======A2C Training========

Training time (A2C): 0.6233839313189189 minutes

======A2C Validation from: 20190405 to 20190708

A2C Sharpe Ratio: 0.37527244094585444

======PPO Training========

Training time (PPO): 2.118389105796814 minutes

======PPO Validation from: 20190405 to 20190708

PPO Sharpe Ratio: 0.3745846825262371

======DDPG Training========

Training time (DDPG): 0.425295885403951 minutes

======DDPG Validation from: 20190405 to 20190708

======Trading from: 20190708 to 20191004

previous\_total\_asset:1142936.279476416

end\_total\_asset:1065619.2675626804

total\_reward:-77317.01191373565

total\_cost: 297.05140054443365

total trades: 52

Sharpe: -0.16258586593602412

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======Model training from: 20090000 to 20190708

======A2C Training========

Training time (A2C): 0.627551798025767 minutes

======A2C Validation from: 20190708 to 20191004

A2C Sharpe Ratio: -0.3693324885777249

======PPO Training========

Training time (PPO): 2.123652219772339 minutes

======PPO Validation from: 20190708 to 20191004

PPO Sharpe Ratio: -0.39282691031904815

======DDPG Training========

Training time (DDPG): 0.45923811992009483 minutes

======DDPG Validation from: 20190708 to 20191004

======Trading from: 20191004 to 20200106

previous\_total\_asset:1176008.5871342756

end\_total\_asset:1181744.3751339645

total\_reward:5735.7879996888805

total\_cost: 476.5338198633015

total trades: 52

Sharpe: 0.028816540974788588

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======Model training from: 20090000 to 20191004

======A2C Training========

Training time (A2C): 0.7028054157892863 minutes

======A2C Validation from: 20191004 to 20200106

A2C Sharpe Ratio: 0.26001173487588614

======PPO Training========

Training time (PPO): 2.909039847056071 minutes

======PPO Validation from: 20191004 to 20200106

PPO Sharpe Ratio: 0.23320697633802276

======DDPG Training========

Training time (DDPG): 0.4489027261734009 minutes

======DDPG Validation from: 20191004 to 20200106

======Trading from: 20200106 to 20200406

previous\_total\_asset:1118947.7386325523

end\_total\_asset:739210.8976118284

total\_reward:-379736.8410207239

total\_cost: 433.7224955908298

total trades: 52

Sharpe: -0.21426938083255256

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======Model training from: 20090000 to 20200106

======A2C Training========

Training time (A2C): 0.668630838394165 minutes

======A2C Validation from: 20200106 to 20200406

A2C Sharpe Ratio: -0.31894974850685986

======PPO Training========

Training time (PPO): 2.8872345805168154 minutes

======PPO Validation from: 20200106 to 20200406

PPO Sharpe Ratio: 0.3722794240276103

======DDPG Training========

Training time (DDPG): 0.4932498256365458 minutes

======DDPG Validation from: 20200106 to 20200406

======Trading from: 20200406 to 20200707

previous\_total\_asset:1232803.7926849062

end\_total\_asset:924935.6573927694

total\_reward:-307868.1352921368

total\_cost: 488.7010271623228

total trades: 52

Sharpe: -0.14467204177607387

Ensemble Strategy took: 59.890949324766794 minutes

Process finished with exit code 0