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

============================================

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

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

Training time (A2C): 0.5839136679967244 minutes

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

A2C Sharpe Ratio: -0.17835530359817664

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

Training time (PPO): 2.0324957927068072 minutes

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

PPO Sharpe Ratio: -0.23515604027836165

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

Training time (DDPG): 0.4357805053393046 minutes

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

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

previous\_total\_asset:1000000

end\_total\_asset:1000700.5814122772

total\_reward:700.5814122771844

total\_cost: 152.63688292577268

total trades: 53

Sharpe: 0.2645249613662141

============================================

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

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

Training time (A2C): 0.610368808110555 minutes

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

A2C Sharpe Ratio: 0.1043402108663356

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

Training time (PPO): 2.042861274878184 minutes

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

PPO Sharpe Ratio: -0.42773436216494853

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

Training time (DDPG): 0.4384815255800883 minutes

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

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

previous\_total\_asset:1000700.5814122772

end\_total\_asset:983349.9643417567

total\_reward:-17350.61707052053

total\_cost: 393.2559701238251

total trades: 62

Sharpe: -0.12080572856365127

============================================

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

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

Training time (A2C): 0.5922464211781819 minutes

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

A2C Sharpe Ratio: -0.1390466708618821

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

Training time (PPO): 2.1693275054295857 minutes

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

PPO Sharpe Ratio: -0.12792369682714905

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

Training time (DDPG): 0.4555018782615662 minutes

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

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

previous\_total\_asset:983349.9643417567

end\_total\_asset:1009859.3809514021

total\_reward:26509.416609645472

total\_cost: 379.60485242269493

total trades: 62

Sharpe: 0.26483156247228506

============================================

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

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

Training time (A2C): 0.6154967228571574 minutes

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

A2C Sharpe Ratio: -0.050503700484460595

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

Training time (PPO): 2.0613975803057354 minutes

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

PPO Sharpe Ratio: -0.026643728317545825

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

Training time (DDPG): 0.4391866087913513 minutes

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

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

previous\_total\_asset:1009859.3809514021

end\_total\_asset:1087992.5371141823

total\_reward:78133.15616278013

total\_cost: 426.66590791358936

total trades: 62

Sharpe: 0.3541018427474562

============================================

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

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

Training time (A2C): 0.5921635627746582 minutes

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

A2C Sharpe Ratio: -0.018872802655371994

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

Training time (PPO): 2.0235746423403422 minutes

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

PPO Sharpe Ratio: -0.01020876180647724

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

Training time (DDPG): 0.44087500174840294 minutes

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

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

previous\_total\_asset:1087992.5371141823

end\_total\_asset:1133897.8118961994

total\_reward:45905.274782017106

total\_cost: 427.41771356733807

total trades: 62

Sharpe: 0.2583142508763823

============================================

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

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

Training time (A2C): 0.6035752216974895 minutes

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

A2C Sharpe Ratio: 0.1139353003953243

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

Training time (PPO): 2.3545621832211814 minutes

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

PPO Sharpe Ratio: 0.04516093875744059

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

Training time (DDPG): 0.5222300251324972 minutes

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

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

previous\_total\_asset:1133897.8118961994

end\_total\_asset:1187342.242592331

total\_reward:53444.43069613166

total\_cost: 325.08285813138957

total trades: 62

Sharpe: 0.30303852595778036

============================================

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

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

Training time (A2C): 0.6963440895080566 minutes

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

A2C Sharpe Ratio: 0.40881056002926097

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

Training time (PPO): 2.3204275250434874 minutes

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

PPO Sharpe Ratio: 0.5917521692285135

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

Training time (DDPG): 0.4522228519121806 minutes

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

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

previous\_total\_asset:1187342.242592331

end\_total\_asset:1240443.7059974126

total\_reward:53101.46340508154

total\_cost: 311.5273216979289

total trades: 62

Sharpe: 0.30291709382915394

============================================

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

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

Training time (A2C): 0.6344439387321472 minutes

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

A2C Sharpe Ratio: 0.13728550861713118

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

Training time (PPO): 2.7798601826032003 minutes

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

PPO Sharpe Ratio: 0.4088934017710429

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

Training time (DDPG): 0.4636331041653951 minutes

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

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

previous\_total\_asset:1240443.7059974126

end\_total\_asset:1301343.0948031754

total\_reward:60899.388805762865

total\_cost: 590.9478817209628

total trades: 62

Sharpe: 0.4102274149968897

============================================

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

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

Training time (A2C): 1.0235148628552755 minutes

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

A2C Sharpe Ratio: 0.2488805878609501

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

Training time (PPO): 2.508709208170573 minutes

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

PPO Sharpe Ratio: 0.26001940151806585

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

Training time (DDPG): 0.5774980703989665 minutes

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

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

previous\_total\_asset:1301343.0948031754

end\_total\_asset:1275225.668491443

total\_reward:-26117.426311732503

total\_cost: 548.0305920849229

total trades: 62

Sharpe: -0.09891310586572184

============================================

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

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

Training time (A2C): 1.1768612305323283 minutes

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

A2C Sharpe Ratio: -0.10678751543288842

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

Training time (PPO): 2.503299323717753 minutes

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

PPO Sharpe Ratio: -0.10459458290422313

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

Training time (DDPG): 0.5091359138488769 minutes

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

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

previous\_total\_asset:1275225.668491443

end\_total\_asset:1293642.8159092057

total\_reward:18417.147417762782

total\_cost: 611.0619846540835

total trades: 62

Sharpe: 0.06543051923409238

============================================

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

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

Training time (A2C): 0.7500503540039063 minutes

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

A2C Sharpe Ratio: -0.3188007875085926

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

Training time (PPO): 2.7383065938949587 minutes

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

PPO Sharpe Ratio: -0.04240150383631748

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

Training time (DDPG): 0.5424669941266378 minutes

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

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

previous\_total\_asset:1293642.8159092057

end\_total\_asset:1428502.4677587447

total\_reward:134859.65184953902

total\_cost: 147.56520999999998

total trades: 62

Sharpe: 0.354396917593335

============================================

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

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

Training time (A2C): 0.6435699224472046 minutes

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

A2C Sharpe Ratio: 0.07544301666474536

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

Training time (PPO): 2.7495582818984987 minutes

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

PPO Sharpe Ratio: nan

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

Training time (DDPG): 0.5269743204116821 minutes

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

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

previous\_total\_asset:1428502.4677587447

end\_total\_asset:1298543.6873027538

total\_reward:-129958.78045599093

total\_cost: 647.116

total trades: 62

Sharpe: -0.21622309529680747

============================================

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

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

Training time (A2C): 0.7021130124727885 minutes

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

A2C Sharpe Ratio: -0.27454199624068476

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

Training time (PPO): 2.6198323726654054 minutes

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

PPO Sharpe Ratio: -0.2730230062063076

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

Training time (DDPG): 0.503070080280304 minutes

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

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

previous\_total\_asset:1298543.6873027538

end\_total\_asset:1440750.4006277742

total\_reward:142206.7133250204

total\_cost: 621.0135321881104

total trades: 62

Sharpe: 0.4747829084595871

============================================

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

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

Training time (A2C): 0.9473976373672486 minutes

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

A2C Sharpe Ratio: 0.2798099800723363

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

Training time (PPO): 2.2109615246454877 minutes

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

PPO Sharpe Ratio: nan

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

Training time (DDPG): 0.4729337334632874 minutes

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

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

previous\_total\_asset:1440750.4006277742

end\_total\_asset:1640490.3245204543

total\_reward:199739.9238926801

total\_cost: 34.583079999999995

total trades: 62

Sharpe: 0.45075193845979306

============================================

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

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

Training time (A2C): 0.6518799702326457 minutes

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

A2C Sharpe Ratio: 0.3826197026224111

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

Training time (PPO): 2.1921165506045024 minutes

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

PPO Sharpe Ratio: 0.3678170285249059

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

Training time (DDPG): 0.4733787576357524 minutes

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

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

previous\_total\_asset:1640490.3245204543

end\_total\_asset:1477502.0600310622

total\_reward:-162988.26448939205

total\_cost: 430.8871018260955

total trades: 62

Sharpe: -0.249323426818467

============================================

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

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

Training time (A2C): 0.6444873253504435 minutes

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

A2C Sharpe Ratio: -0.3387275519363531

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

Training time (PPO): 2.2094037930170694 minutes

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

PPO Sharpe Ratio: -0.33884549395874036

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

Training time (DDPG): 0.5001609206199646 minutes

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

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

previous\_total\_asset:1477502.0600310622

end\_total\_asset:1635682.56865994

total\_reward:158180.5086288778

total\_cost: 0.0

total trades: 62

Sharpe: 0.3495745542499334

============================================

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

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

Training time (A2C): 0.6930086493492127 minutes

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

A2C Sharpe Ratio: -0.13794323289155616

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

Training time (PPO): 2.3832423090934753 minutes

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

PPO Sharpe Ratio: 0.23589525930120891

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

Training time (DDPG): 0.5125764052073161 minutes

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

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

previous\_total\_asset:1635682.56865994

end\_total\_asset:1001371.8799921616

total\_reward:-634310.6886677784

total\_cost: 454.01698683337804

total trades: 62

Sharpe: -0.23885910671051916

============================================

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

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

Training time (A2C): 0.6964076280593872 minutes

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

A2C Sharpe Ratio: -0.2941712391459094

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

Training time (PPO): 2.3607720375061034 minutes

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

PPO Sharpe Ratio: -0.2879421309271988

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

Training time (DDPG): 0.46397709449132285 minutes

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

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

previous\_total\_asset:1001371.8799921616

end\_total\_asset:1278008.285656005

total\_reward:276636.40566384327

total\_cost: 490.8722372257519

total trades: 62

Sharpe: 0.2398938440273437

Ensemble Strategy took: 64.05206989447275 minutes