

# Notes Report

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## Summary

We filter the data to remove negative trade cost values, before calculating a new time column based on a combination of year and quarter. We group by this variable when doing any sort of aggregation operation, as seen below.

```
#Basic filtering conducted on the read-in data
df <- df[df$trade_cost > 0, ]

#2. Lets compute some simple statistics (we always think in terms of quarters, meaning q1, q2, q3, q4 f

#need to define quarter
df$quarter <- quarters(df$report_date)
df$year <- year(df$report_date)
df$Time <- as.yearqtr(paste(df$year, df$quarter))

#(a) Quarterly number of investors (fund id)
investors <- df %>% group_by(Time) %>% summarise(numInvestors = length(unique(fund_id)))

#(b) Quarterly number of dealers (brokid)-we should exclude EP (elec pltf) and ATS
dealersNon <- df %>% filter(elec_platf == 0) %>% filter(ATS == 0) %>% group_by(Time) %>% summarise(numB

#(c) Quarterly number of EP and ATS
#Note: All elec_platf are automatically in ATS
dealersEP <- df %>% filter(elec_platf == 1) %>% filter(ATS == 1) %>% group_by(Time) %>% summarise(EPATS

#3. Aggregate trading volume of dealers, EP and ATS per quarter
dealersNonVol <- df %>% filter(elec_platf == 0) %>% filter(ATS == 0) %>% group_by(Time) %>% summarise(t

dealersEPVol <- df %>% filter(elec_platf == 1) %>% filter(ATS == 1) %>% group_by(Time) %>% summarise(tr

output <- merge(investors, dealersNon, by = "Time")
output <- merge(output, dealersNonVol, by = "Time")
output <- left_join(output, dealersEP, by = "Time")
output <- left_join(output, dealersEPVol, by = "Time")
print(output)
```

##	Time	numInvestors	numBrokers	trns_amountNon	trade_costNon	EPATS
## 1	2005 Q1	1815	242	97478881	527380335	NA
## 2	2005 Q2	1827	240	67815334	403135325	NA
## 3	2005 Q3	1733	259	71755608	383960213	NA

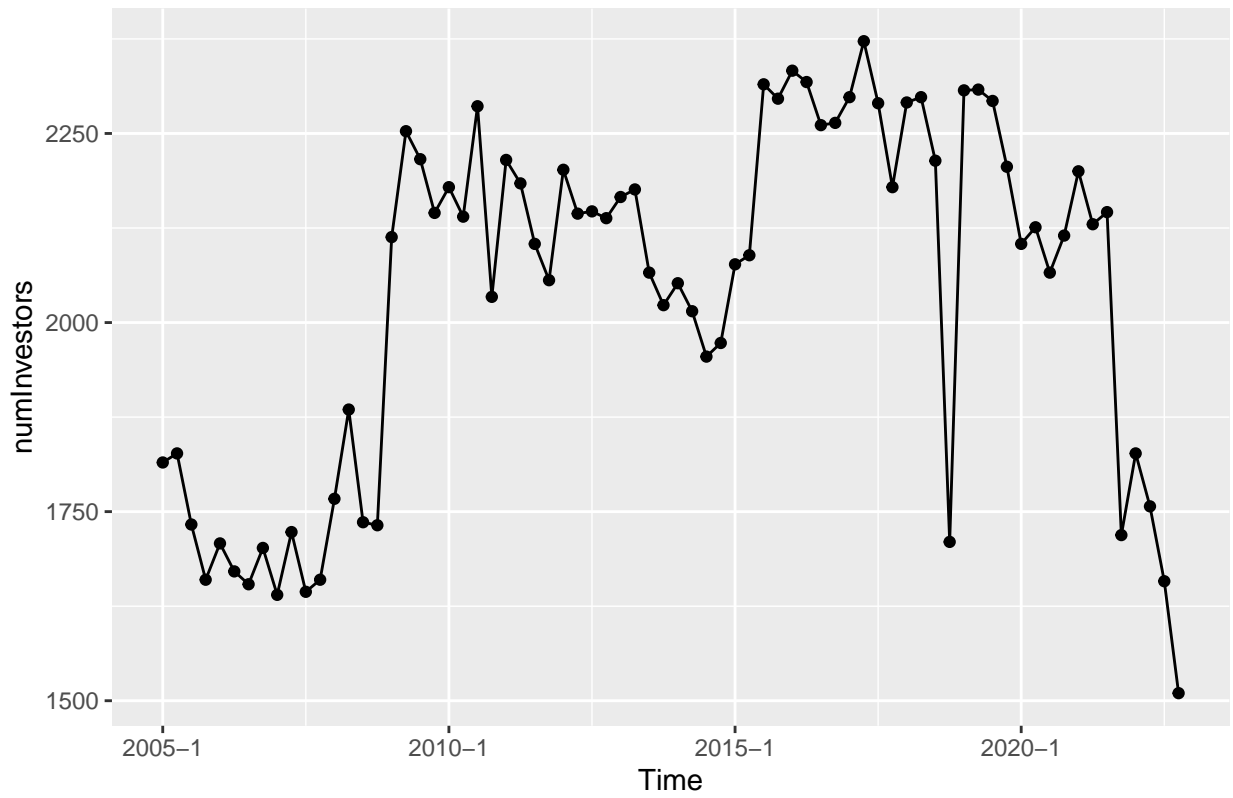
## 4	2005 Q4	1660	231	81392948	341445753	NA
## 5	2006 Q1	1708	215	87406523	657048427	NA
## 6	2006 Q2	1671	214	98368442	554471636	NA
## 7	2006 Q3	1654	202	84045427	482500706	NA
## 8	2006 Q4	1702	216	80184481	519462370	NA
## 9	2007 Q1	1640	255	124750042	566111409	NA
## 10	2007 Q2	1723	251	57163526	305199144	NA
## 11	2007 Q3	1644	228	89816511	226710236	NA
## 12	2007 Q4	1660	234	96098106	207816983	NA
## 13	2008 Q1	1767	273	100586428	344325285	NA
## 14	2008 Q2	1885	298	105833188	316000658	NA
## 15	2008 Q3	1736	258	48254025	170452528	NA
## 16	2008 Q4	1732	260	78176088	159878338	NA
## 17	2009 Q1	2113	322	143508933	360584244	1
## 18	2009 Q2	2253	325	95212223	315930129	1
## 19	2009 Q3	2216	315	99417320	335222764	1
## 20	2009 Q4	2145	318	106946904	351682815	1
## 21	2010 Q1	2179	360	127985118	376543999	1
## 22	2010 Q2	2140	356	38508446	284866518	1
## 23	2010 Q3	2286	353	136771309	287045678	1
## 24	2010 Q4	2034	304	99646994	225107153	1
## 25	2011 Q1	2215	339	111339662	323544123	NA
## 26	2011 Q2	2184	304	88184305	287386893	NA
## 27	2011 Q3	2104	286	104909438	268755869	NA
## 28	2011 Q4	2056	278	126003342	268794897	NA
## 29	2012 Q1	2202	279	122828650	362676597	NA
## 30	2012 Q2	2144	299	88438390	290084458	1
## 31	2012 Q3	2147	274	122614990	285497446	1
## 32	2012 Q4	2138	270	150974464	283387918	2
## 33	2013 Q1	2166	299	124558770	327009619	3
## 34	2013 Q2	2176	296	117883589	306754825	3
## 35	2013 Q3	2066	272	111792506	268151605	3
## 36	2013 Q4	2023	241	123095107	272650627	3
## 37	2014 Q1	2052	265	146413512	415327468	3
## 38	2014 Q2	2015	286	118822994	386493043	3
## 39	2014 Q3	1955	262	96236712	258212019	3
## 40	2014 Q4	1973	244	113357180	267130069	3
## 41	2015 Q1	2077	266	159446498	500896776	3
## 42	2015 Q2	2089	260	106582095	323317732	3
## 43	2015 Q3	2315	264	167471588	362056908	3
## 44	2015 Q4	2296	245	183826513	386766651	3
## 45	2016 Q1	2333	282	114782098	421387237	3
## 46	2016 Q2	2318	252	127195651	452717688	3
## 47	2016 Q3	2261	245	159483373	369344148	3
## 48	2016 Q4	2264	246	139369277	375906139	3
## 49	2017 Q1	2298	269	124360655	511747732	3
## 50	2017 Q2	2372	250	100915364	444803861	3
## 51	2017 Q3	2290	248	100458886	311091999	3
## 52	2017 Q4	2179	229	116709830	307545989	3
## 53	2018 Q1	2291	253	107531475	365137614	3
## 54	2018 Q2	2298	239	86105503	302323905	3
## 55	2018 Q3	2214	234	112317594	343525877	3
## 56	2018 Q4	1710	195	113395795	327874188	3
## 57	2019 Q1	2307	243	132753477	571430672	3

## 58	2019 Q2	2308	235	110562263	604239486	3
## 59	2019 Q3	2293	244	198675202	619666855	3
## 60	2019 Q4	2206	235	149514885	361013210	3
## 61	2020 Q1	2104	218	332315073	414951349	3
## 62	2020 Q2	2126	222	196561600	353802987	3
## 63	2020 Q3	2066	201	250327470	356148518	3
## 64	2020 Q4	2115	212	140717191	376579232	3
## 65	2021 Q1	2200	228	172957619	596680101	3
## 66	2021 Q2	2130	222	136049465	434647071	3
## 67	2021 Q3	2146	212	181022232	399916693	3
## 68	2021 Q4	1719	172	82091037	273709831	3
## 69	2022 Q1	1827	194	127739344	480414003	3
## 70	2022 Q2	1757	202	65677798	254516690	3
## 71	2022 Q3	1658	183	53434422	153538024	3
## 72	2022 Q4	1510	168	19517072	54270023	3
##	trns_amountEP	trade_costEP				
## 1	NA	NA				
## 2	NA	NA				
## 3	NA	NA				
## 4	NA	NA				
## 5	NA	NA				
## 6	NA	NA				
## 7	NA	NA				
## 8	NA	NA				
## 9	NA	NA				
## 10	NA	NA				
## 11	NA	NA				
## 12	NA	NA				
## 13	NA	NA				
## 14	NA	NA				
## 15	NA	NA				
## 16	NA	NA				
## 17	2050	2192				
## 18	-8018	7874				
## 19	-29540	38350				
## 20	-2110	7098				
## 21	-45335	49996				
## 22	-5020	5330				
## 23	-858	837				
## 24	-672	728				
## 25	NA	NA				
## 26	NA	NA				
## 27	NA	NA				
## 28	NA	NA				
## 29	NA	NA				
## 30	-36	40				
## 31	11144	13558				
## 32	527674	567569				
## 33	1332728	1745502				
## 34	1204194	1744007				
## 35	1376189	1964356				
## 36	1353676	2288130				
## 37	560513	2094645				
## 38	1213465	2803393				

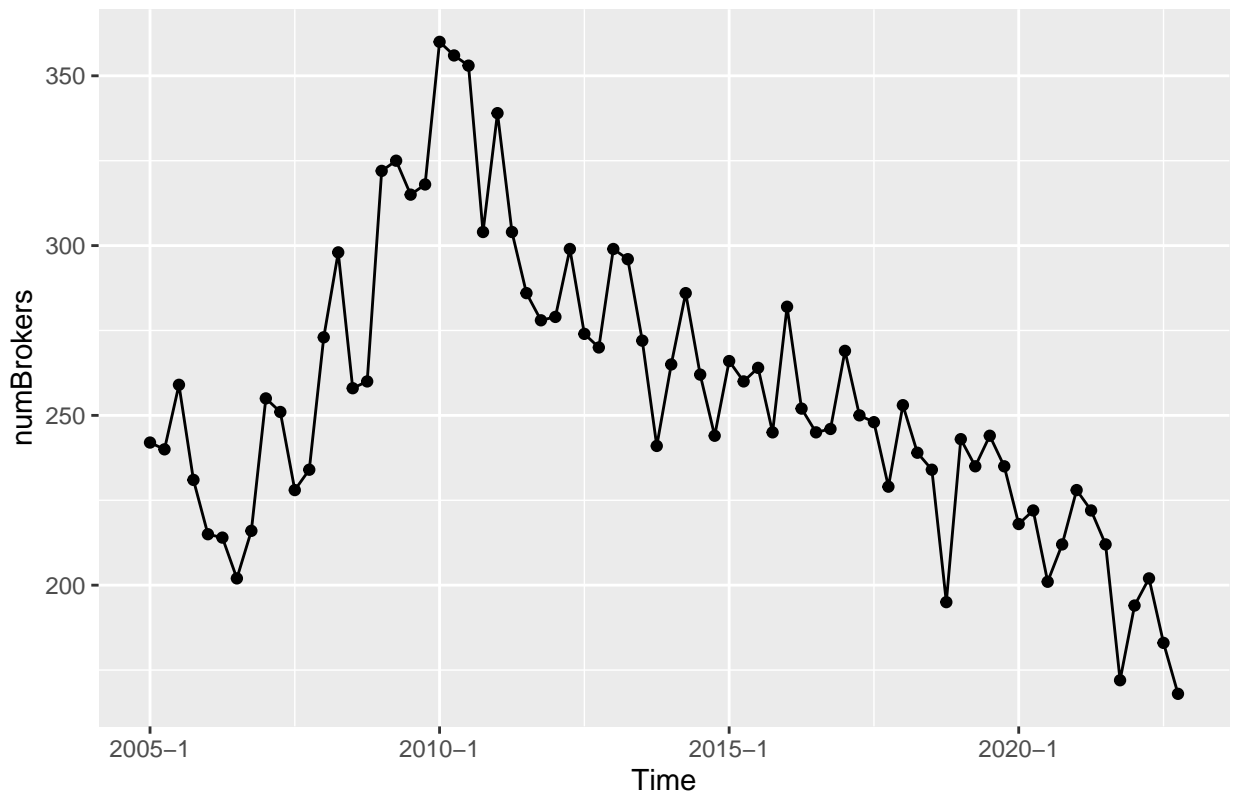
## 39	552225	1387811
## 40	1356988	2695063
## 41	955613	4720484
## 42	596975	3762925
## 43	770644	3356044
## 44	221305	2512552
## 45	937700	3437099
## 46	861921	5170501
## 47	1245612	4223922
## 48	308509	4697881
## 49	2451614	6919169
## 50	1425864	5332102
## 51	2352143	6238302
## 52	1478610	3860785
## 53	1073518	4926969
## 54	806955	4227785
## 55	279709	4788192
## 56	-879954	5146804
## 57	-394169	6174846
## 58	-355547	8634054
## 59	-1099863	8104897
## 60	-1099611	4163611
## 61	3735198	5444006
## 62	1893802	6446319
## 63	2486338	5831308
## 64	-1623206	6456203
## 65	-1694012	8662658
## 66	-117184	6799074
## 67	-128260	4899126
## 68	-163767	6363941
## 69	-1094150	9463826
## 70	-324885	6166629
## 71	-617814	2895279
## 72	-281687	1457747

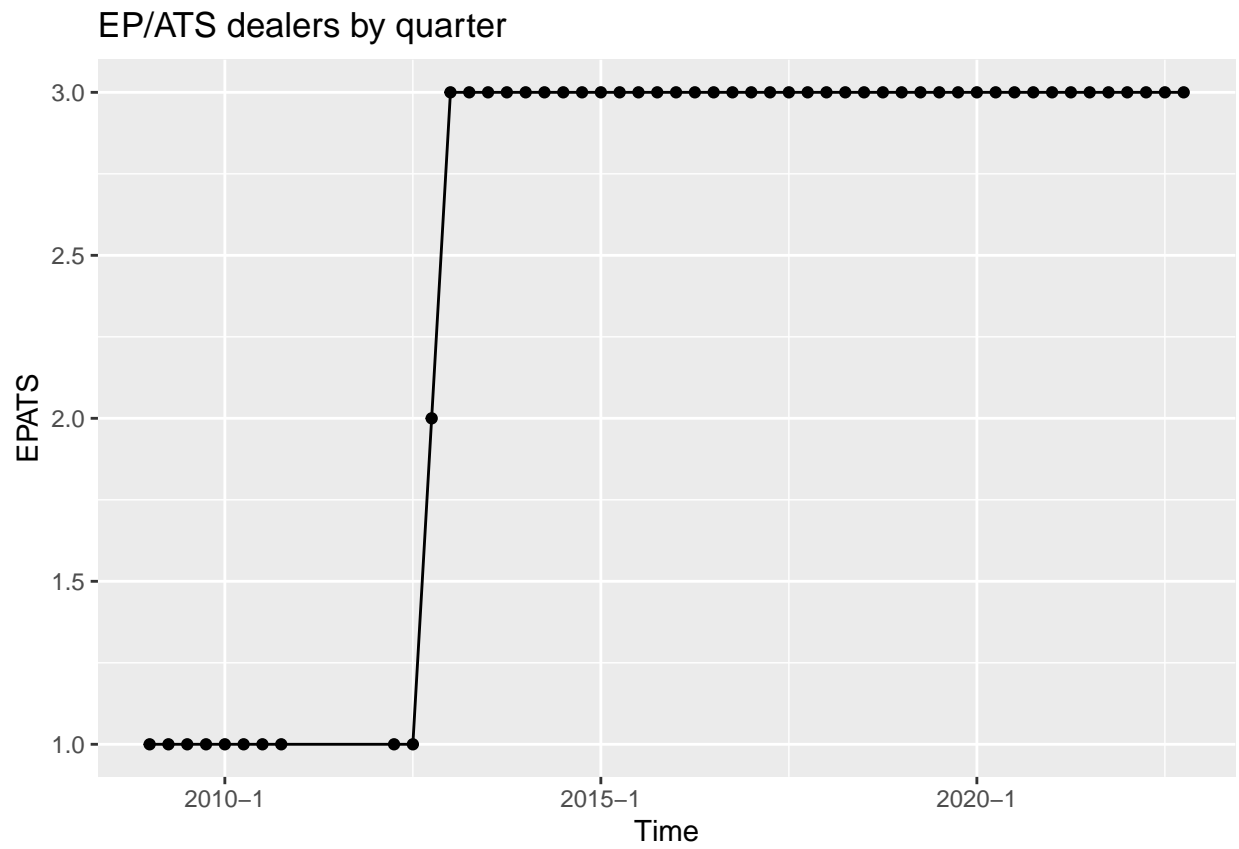
## Plotting

Unique investors by quarter

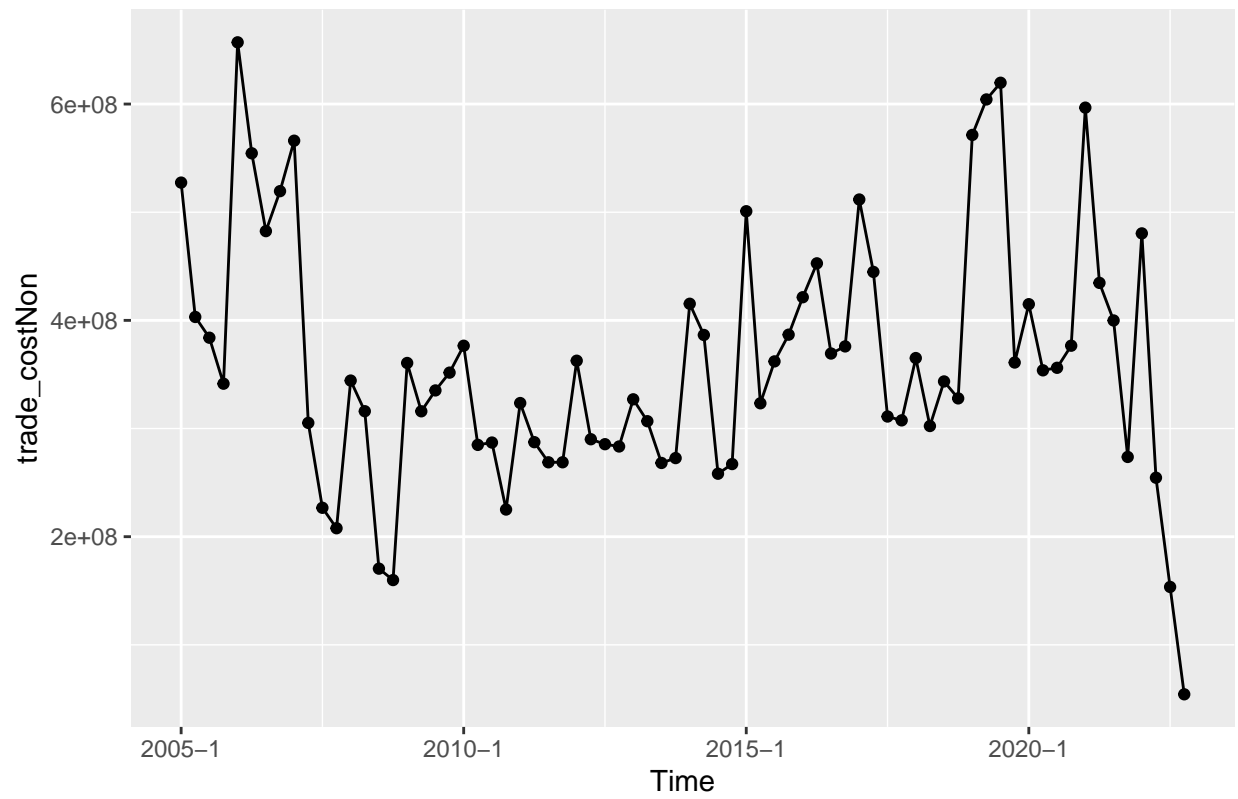


Unique dealers (non EP/ATS) by quarter





non EP/ATS Trade Costs by quarter



EP/ATS Trade Costs by quarter

