On Measuring Divergence of Investors' Opinion

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There is a growing theoretical and empirical body of literature in finance and accounting that analyzes the effects of heterogeneous investor expectations. In accounting the notion of heterogeneous investor beliefs plays an important role for understanding the information environment of the firms, dynamics of uncertainty resolution and the nature of market reactions to the news. Finance literature attempts to understand how differences of investor opinion affect the aggregate and the cross-section of asset returns. The concept of divergence of investors' opinion (DIVOP) has been and continues to be widely used in empirical research both as a variable of interest and one of the firm-specific controls that might be employed to proxy for the quality of firm's information environment. For example, among numerous papers on the topic, researchers tested whether DIVOP can explain post-earnings announcement drift (Garfinkel and Sokobin, 2006; Anderson et al., 2007), the cross-sectional return difference between value and growth stocks (Doukas et al, 2004), short and long-run post-IPO returns (Houge et al., 2001), pre- and post-acquisition stock returns (Alexandridis et al, 2007), takeover premium (Chatterjee et al., 2009) and the cross-section of stock returns (Diether et al., 2002; Doukas et al., 2006).

Below are some of the DIVOP constructs that financial researchers used in the past:

Analyst forecast dispersion (Abarbanell et al., 1995; Diether et al., 2002) and modified analyst-based opinion divergence measures (Barron et al, 1998; Moeller et al., 2007)
Volume-based measures (Garfinkel and Sokobin, 2006)
Breadth of mutual fund ownership (Chen et al., 2002; Diether, 2004)
Bid-ask spread (Handa et al., 2003)
Open interest (Bessembinder et al., 1996)
Dispersion of order flow across market makers (Anderson et al., 2007)
"Limit vs. market order" based measure of opinion divergence (Garfinkel, 2009)
Idiosyncratic volatility (Boehme et al., 2006; Chatterjee et al., 2009)
Mixture of asset volume and volatility (Wu, 2008)

Given the importance of this concept both in accounting and finance, the primary goal of this research application is to provide researchers with a sample methodology to calculate some of the most commonly used proxies for divergence of investor opinion using the WRDS platform. Namely, we focus on the following measures:

1. Unexplained volume (regular and standardized versions)
2. Stock Return Volatility
3. Bid-Ask Spread
4. Analyst forecast dispersion.

Most of derivations closely follow Garfinkel (2009). Specifically, for the first measure, Unexplained Volume (DTO), a firm's daily turnover is computed as the firm's daily volume on a given day divided by its shares outstanding from CRSP. To address the issue of double-counting of volume for NASDAQ securities we use the findings reported by Anderson and Dyl (2005). They propose a rough rule of thumb to scale down the volume of NASDAQ securities by 38% after 1997 and by 50% before that to make it roughly comparable with the volume on NYSE. To obtain the unexplained volume DIVOP measure, the market-adjusted turnover is de-trended by its 180 trading day median (a user can easily modify this horizon by changing the settings in proc expand).

Standardized unexplained volume (SUV) is calculated using rolling stock-level daily time-series regressions based on trading, rather than calendar days, which ensures that the estimation is done over the similar trading time horizons. The advantage of this measure over DTO proxy is that it is designed to control for both the liquidity and informedness effects in volume (see Garfinkel (2009), page 1326).

Stock return volatility (VOLATILITY) is constructed using the same estimation period that is used to build the unexplained volume proxy. The length of the estimation window and other inputs used in calculations of unexplained volume and return volatility have been "parametrized" for greater flexibility. In this application we use total stock return volatility, but researchers can easily modify the script to calculate idiosyncratic volatility by plugging relevant risk factors in the regression specification.

However, there are some deviations from the methodology used in Garfinkel (2009) when calculating alternative DIVOP proxies. Garfinkel calculates the ***Bid-Ask spread (BASPREAD)*** measure based on NYSE TAQ data. Given the fact that TAQ-based calculations might be quite time-consuming and resource-intensive and some users may not be subscribed to TAQ, this application relies on bid-ask spread calculated from CRSP tapes. Recent research (e.g., Chung and Zhang, 2009) suggests that CRSP-based spread is highly correlated with the TAQ-based spread and that the former provides a better approximation of the latter than most other low-frequency liquidity measures proposed in prior studies. In the CRSP database, Bid and Ask are set to zero if available quotes are unrepresentative of trading activity. Following Chung and Zhang (2009), we delete CRSP observations if both Ask and Bid are zero and if bid-ask spread is greater than 50% of the quote-midpoint.

Another modification is taken with respect to the calculation of Analysts' Forecast Dispersion (DISP1 and DISP2). Garfinkel (2009) constructs an analyst-based DIVOP proxy from forecasts submitted during the month of the opinion divergence measure's calculation (to address concerns due to staleness of IBES forecasts noted by McNichols and O'Brien, 1997). This may be an appropriate approach given the short time interval (Jan-Mar 2002) considered in Garfinkel (2009). In larger samples, however, clustering of analyst forecasts plays an important role as analysts have a tendency to revise year-end forecasts following the release of quarterly earnings (see, for instance, Cooper et al., 2001). This often leads to an insufficient number of newly issued forecasts during certain months potentially rendering analyst-based divergence measure imprecise.

Therefore, in this research application the analyst forecast for a given (company-fiscal period end) pair is carried forward till either the date of the consecutive estimate release for the same (company-fiscal period end) combination by the same analyst or the date which is 105 days ahead or the earnings announcement date, whichever comes sooner. The decision to carry the forecast forward for up to 105 days is based on the IBES methodology (see IBES Detailed Estimates Manual, page 19) according to which if an estimate has not been updated for 105 days, it is filtered, footnoted and excluded from the consensus calculation (IBES uses 120 days for the cutoff of estimates for Q4, but we stick to 105 days as it being a more conservative approach). This methodology helps alleviate, albeit not eliminate, the issue of forecast staleness.

Two measures of analyst forecast dispersion are calculated, one scaled by the absolute value of the mean analysts' forecast (DISP1) and the other scaled by the firm's average monthly stock price (DISP2). The application also demonstrates how to incorporate excluded and stopped estimates to make sure that analyst forecast dispersion is constructed using valid outstanding forecasts.

Note of Caution: Researchers need to keep in mind that deflating unscaled analyst forecast dispersion by either scale has its pitfalls. Scaling by absolute value of mean forecast may produce extreme values of forecast dispersion and biased regression results, because the mean forecast tends to take both positive and negative values and, therefore, some observations for the denominator will always be at or close to zero. Similarly, scaling by price is not without its own empirical issues. Cheong and Thomas (2009) document that, despite the substantial variation across price deciles in the scale of actual and forecast EPS, unscaled analyst forecast dispersion varies only slightly with share price. Authors argue that deflating by price induces large negative correlation between price and price-deflated measures of analyst disagreement and recommend avoiding deflating by scale, unless it is called by theory. They suggest that it is a good idea to report results for both unscaled and scaled versions, but include price/inverse of price as an additional regressor.

The table below shows Spearman correlations among these DIVOP proxies calculated for the entire cross-section of US common stocks during Jan 1980-Dec 2009 time period. Note that analyst-based DIVOP measures DISP1 and DISP2 are at the monthly frequency, whereas the rest of the proxies are at the daily frequency. Hence, in correlation analysis, DISP1 and DISP2 in month t are linked to other DIVOP measures starting at the beginning of month (t+1).

	Change in Market-Adjusted Turnover (DTO)	Standardized Unexplained Volume (SUV)	Analyst Forecast Dispersion scaled by absolute mean forecast (DISP1)	Analyst Forecast Dispersion scaled by price (DISP2)	Bid-Ask Spread (BASPREAD)	Daily Stock Volatility (VOL)
MEAN	-0.0001	-0.0043	0.1364	0.0081	0.0378	0.0276
STD	0.0038	1.0259	0.3248	0.0206	0.0310	0.0144
N	10,282,276	10,282,276	10,282,276	10,282,276	10,282,276	10,282,276

Spearman Correlations

DTO	1.000	0.426	-0.005	-0.004	0.117	-0.017
SUV	0.426	1.000	-0.020	-0.021	0.095	-0.036
DISP1	-0.005	-0.020	1.000	0.860	0.187	0.260
DISP2	-0.004	-0.021	0.860	1.000	0.136	0.201
BASPREAD	0.117	0.095	0.187	0.136	1.000	0.616
VOL	-0.017	-0.036	0.260	0.201	0.616	1.000

Calculating Divergence of Investor Opinion Proxies sample code

```
%wrds(s=2);

/* ************************************************************************** */
/* ************* W R D S   R E S E A R C H   A P P L I C A T I O N S ************* */
/* ************************************************************************** */
/* Summary: Calculate various proxies for divergence of investors' opinion    */
/*          - unexplained volume                                              */
/*          - stock return volatility                                         */
/*          - bid ask spread                                                  */
/*          - analyst forecast dispersion                                     */
/* Date: May 2010                                                             */
/* Author: Denys Glushkov, WRDS                                               */
/* Details:                                                                   */
/*       - INPUT table containing the list of CRSP Permno identifiers         */
/*       - CRSP Daily Stock File (DSF), Daily Events File (DSE),              */
/*       - IBES Detail Estimates (DET), Excluded and Stopped estimates, IBES ID file */
/*                                                                            */
/* OUTPUT: DIVERGENCE dataset with various differences of opinion proxies     */
/* ************************************************************************** */

 %let estwindow=60; /*estimation window for unexplained volume and volatility       */
 %let lag=7;        /*parameter used in unexplained volume de-trending             */
 %let gap=5;        /*parameter used for standardized unexplained volume calculation */
 %let begdate=01jan1980; /*beginning date of divergence of opinion proxy calculation */
 %let enddate=31dec2011; /*ending date of divergence of opinion proxy calculation   */
 %let stocks_filter=shrcd in (10,11); /*restrict to common stocks only              */
 %let exch_filter=exchcd in (1,2); /*NYSE/AMEX exchange filter                      */
 %let domain=epsus; /*use IBES files with EPS measure for US firms                */

 /*IBES variables required for dipersion of analyst forecasts calculation*/
 %let ibes_vars=ticker fpedats fpi anndats actdats revdats
               analys measure value usfirm anndats_act estimator;
 %let ibes_filter="&begdate"d<=fpedats<="&enddate"d;

 %let dsevars=shrcd exchcd;                    /*CRSP event file variables          */
 %let dsfvars = vol ret shrout cfacpr cfacshr; /*CRSP stock file variables          */
 libname home '~';                             /*home directory on WRDS Unix Server */
```

```
options sasautos=('/wrds/wrdsmacros/', SASAUTOS) MAUTOSOURCE; /*WRDS Research Macros */
 /* STEP 1: MERGE CRSP STOCK AND EVENTS DATA                                    */

 /* Merge CRSP stock and event files into the output file named "CRSP_D"       */
%CrspMerge(s=d,start=&begdate,end=&enddate,sfvars=&dsfvars,sevars=&dsevars,
            filters=&exch_filter and &stocks_filter);

 /*INPUT table contains the list of distinct CRSP stock identifiers (PERMNO) for */
 /*which divergence of opinion proxies are to be calculated                      */
 /*An example of INPUT file: PERMNOs for MICROSOFT, IBM and INTEL                */
Data Input;
 input permno;
  datalines;
   10107
   12490
   59328
;run;

/*STEP 2:CONSTRUCT PROXIES FOR OPINION DIVERGENCE */

/*Calculate market-wide turnover across NYSE/AMEX common stocks*/
Proc Sql;
 create view Market_Turn
  as select a.date, sum(vol*cfacshr)/sum(shrout*cfacshr*1000)
           as market_turn format=percent7.4
  from CRSP_D a where &exch_filter
  group by date
  order by date;
/*Firm-Specific turnover measure PERMNOs in user-created INPUT table*/
 create view Vol
  as select a.*, a.vol/(a.shrout*1000) as turn format=percent7.4, c.exchcd
  from Crsp.Dsf (keep=permno date ret vol shrout bidlo askhi bid ask) a,
       Input b,
       CRSP_D c
  where a.permno=b.permno and a.permno=c.permno and a.date=c.date
  order by date;
quit;

/*Calculate market-adjusted turnover and bid-ask spread             */
/*Adjust volume for NASDAQ stocks following Anderson and Dyl (2005) */
Data Volume; merge Vol Market_Turn (keep=date market_turn);
 by date;
 where date between "&begdate"d and "&enddate"d;
  if exchcd=3 then
  turn=(date <='01jan1997'd)*0.5*turn+(date>'01jan1997'd)*0.62*turn;
  mato=turn-market_turn; *adjust for market turnover;
  midpoint=coalesce(mean(ask,bid),mean(askhi,bidlo));
  baspread=coalesce(ask-bid, askhi-bidlo)/midpoint;
  format mato percent7.4;
  if not missing(permno);
  drop market_turn;
run;

/*sanity check; sort should produce no duplicates*/
Proc Sort Data=Volume nodupkey; by permno date;run;

/*Next step is detrending. Calculate moving 180-day median market-adjusted turnover*/
/*Any missing values of MATO will be replaced with the moving statistic while      */
/*leaving non-missing values unchanged                                             */
Proc Expand data=Volume out=Volume1 method=none;
 by permno; id date;
 convert mato=mato_median/transformout=(missonly movmed 180);
quit;

/*Unexplained volume: version 1                        */
/*See Garfinkel(2009), page 1325-1326                  */
Data Volume1; set Volume1;
 by permno date;
  mato_med_control=lag&lag(mato_median);
  if permno ne lag&lag(permno) then mato_med_control=.;
  dto=mato-mato_med_control;
  retpos=(ret>0)*abs(ret);
  retneg=(ret<0 and not missing(ret))*abs(ret);
  format dto percent7.4 date date9.;
  drop mato_median mato_med_control;
  label turn='Daily Turnover'
        mato='Daily Market-Adjusted Turnover'
        dto='Change in Market-Adjusted Turnover'
        baspread='Bid-Ask Spread';
run;

Proc Sort Data=volume1 out=volume2 nodupkey; by permno date; run;

/*Unexplained volume: version 2 (standardized unexplained volume)              */
/*See Garfinkel (2009), page 1326-1327                                         */
/*Create trading calendar based on the length of estimation window (estwindow), */
/*and the trading day gap between the end of estimation period and the date     */
/*of the actual unexplained volume calculation. Using trading calendar ensures  */
/*that the same number of trading days is used in calculations                 */
Data _Caldates;
     merge Crsp.Dsi (keep=date rename=(date=estper_beg))
     Crsp.Dsi (keep=date firstobs=%eval(&estwindow) rename=(date=estper_end))
     Crsp.Dsi (keep=date firstobs=%eval(&estwindow+&gap+1));
     format estper_beg estper_end date date9.;
     if missing(estper_beg)=0 and missing(estper_end)=0 and missing(date)=0;
run;

/*Start of the countdown for rolling regressions*/
proc sql noprint;
    create table Start as
    select a.date, abs(a.estper_beg-b.first_date) as dist, b.last_date format=date9.
    from _Caldates a, (
            select min(date) as first_date, max(date) as last_date
            from Volume2 (where=(not missing(turn)))) b
```

```
    having dist=min(dist)
    order by date desc;

    select date format=8., last_date format=8. into: k_start,
                                                  : k_end
    from start (firstobs=1);
quit;

/*Starting and ending trading days for the rolling regressions module required     */
/*to calculate stock return volatility and standardized unexplained volume         */
%put 'Starting Date For Rolling Regressions '; %put %sysfunc(putn(&k_start,date9.));
%put 'Ending Date For Rolling Regressions ';   %put %sysfunc(putn(&k_end,date9.));

options nosource nonotes;
filename junk dummy; proc printto log = junk; run;
%Macro REGS;
 %do k=&k_start %to &k_end;
 /*read the trading days for the beginning and the end of the estimation period*/
  data _Null_; set _Caldates (where=(date=&k));
    call symput('start',estper_beg);
    call symput('end',estper_end);
  run;

  proc reg data=Volume2 noprint edf outest=params;
    by permno;
    where &start <=date <=&end;
 /*the overstatement of volume for NASDAQ securities to be captured by intercept*/
    model turn=retpos retneg;
    model ret=;
  quit;

  data Params; set Params;
   date=&k; format date date9.;
  run;
  proc append base=Params_all data=Params;run;
 %end;
%mend;

%REGS;
options source notes;
proc printto;run;

Proc Sort Data=Params_all thread; by permno date;run;

/*Compute standardized unexplained volume and keep only those       */
/*observations for which missing turnover values do not exceed 20%  */
/*of the estimation window                                          */
Data Suv;
 merge Volume2 (in=a) Params_all (where=(upcase(_depvar_)='TURN')
  keep=permno _depvar_ date _rmse_ intercept retpos retneg _p_ _edf_
  rename=(retpos=retpos_beta retneg=retneg_beta));
 by permno date;
  predicted_turn=intercept+retpos_beta*retpos+retneg_beta*retneg;
  suv=(turn-predicted_turn)/_rmse_ ; /*standardized unexplained volume measure*/
  /*impose Chung and Zhang (2009) filters on Bid-Ask measure*/
  if ((bid=0 and ask=0) or (bidlo=0 and askhi=0))
      or abs(baspread/midpoint)>0.5
  then delete;
  if sum(_p_,_edf_)>=0.8*&estwindow and a;
  keep permno date ret vol turn suv mato dto predicted_turn baspread;
  format predicted_turn percent7.4 suv best5. baspread percent7.4;
  label predicted_turn='Predicted Turnover'
        suv='Standardized Unexplained Volume';
run;

/*STEP 2: CONSTRUCT ANALYST FORECAST DISPERSION PROXY*/

/*WRDS Links between CRSP and IBES*/
%ICLINK;

/*Define the universe of IBES Tickers*/
Proc Sql;
 create table _Sample
  as select distinct ticker, permno
  from Iclink
  where permno in (select distinct permno from input)
  and score in (0,1)
  order by permno;

/*select IBES tickers to compute the analyst forecast dispersion               */
/*Exclude erroneous observations for which Earnings Announcement Date (ANNDATS) */
/*precedes the Review Date (REVDATS)                                           */
create view _Temp
  as select a.*, b.permno, put(anndats, yymmn.) as yearmon
  from Ibes.Det_&domain (keep=&ibes_vars) a, _Sample b
  where a.ticker=b.ticker and nmiss(fpedats,anndats_act)=0
  and &ibes_filter and fpi='1' and a.anndats_act>a.revdats and analys ne 0
  order by ticker, fpedats, analys, yearmon, anndats, revdats;
quit;

/*keep only the latest stock forecasts by an analyst in a given month*/
Data _Temp1/view=_Temp1; set _Temp;
  by ticker fpedats analys yearmon anndats;
  if last.yearmon;
run;

Proc Sql;
/*Extract relevant stopped estimates*/
 create view Stopped
  as select a.ticker, a.fpedats, a.estimator, a.astpdats
  from Ibes.Stop_&domain a, _Sample b
  where a.pdicity='A' and &ibes_filter and
  a.ticker=b.ticker and not missing(a.astpdats)
  group by a.ticker, a.fpedats, a.estimator
```

```
  having astpdats=max(astpdats);

/*Extract relevant excluded estimates*/
 create view Excluded
  as select a.ticker,a.fpedats,a.actdats,a.estimator,a.analys,a.excdats,a.excends
  from Ibes.Exc_&domain a, _Sample b
  where &ibes_filter and fpi='1' and a.ticker=b.ticker and not missing(a.excdats);

/*Merge Detailed Estimates with Stopped and Excluded files*/
 create table _Temp2 (drop=measure fpi usfirm actdats)
  as select c.*, d.excdats, d.excends
  from (select a.*, b.astpdats from _Temp1 a left join Stopped b
  on a.ticker=b.ticker and a.estimator=b.estimator and a.fpedats=b.fpedats) c
  left join Excluded d
  on c.ticker=d.ticker and c.fpedats=d.fpedats and c.actdats=d.actdats and
  c.estimator=d.estimator and c.analys=d.analys;
quit;

Proc Sort Data=_Temp2 noduprec; by _all_;run;

/*Remove forecasts that were stopped or excluded*/
Data _Temp2; set _Temp2;
 if anndats>=astpdats and nmiss(anndats,astpdats)=0 then delete;
 if (nmiss(excdats,excends)=0 and excdats<=anndats<=excends)
 or (not missing(excdats) and anndats>=excdats) then delete;
 drop astpdats excdats excends;
run;

/* Sorting anndats and revdats in descending order is intentional to define leads  */
/* The Estimate will be carried forward to either the next estimate issue date,    */
/* Anndats(t+1), or Anndats(t)+105, or EAD, whichever comes sooner                 */
/* Ensure forecast dispersion measure doesn't include stale forecasts              */
Proc Sort Data=_Temp2 nodupkey;
 by ticker analys fpedats descending anndats descending revdats;
run;

data _Temp2; set _Temp2;
 by ticker analys fpedats descending anndats descending revdats;
 leadanndats=min(lag(anndats), intnx('day',anndats,105));
 if first.fpedats then leadanndats=min(intnx('day',anndats,105), anndats_act);
 leadanndats_me=intnx('month',leadanndats,0,'e');
 anndats_me=intnx('month',anndats,0,'e');
 format leadanndats date9. anndats date9. leadanndats_me date9. anndats_me date9.;
run;

/*Populate Detailed Forecasts into monthly frequency, so that for each    */
/*Ticker-Year-Month an analyst forecast dispersion measure can be defined */
Proc Sql;
 create view Base
  as select distinct b.ticker, intnx('month',b.date,0,'E') as date format=date9.,
                     intnx('month',b.date,1,'E') as lead_date format=date9.
  from (select distinct ticker, intnx('month',min(anndats),0,'B') as minfdate,
        intnx('month',max(leadanndats),0,'E') as maxfdate
        from _Temp2 group by ticker) a,
             (select * from (select distinct ticker from _Temp2),
             (select distinct date from Crsp.Msi)
             where "&begdate"d <= date <= "&enddate"d) b
             where a.ticker=b.ticker and a.minfdate<=b.date<=a.maxfdate
             order by b.ticker, date;

/*Carrying the forecasts forward until the next appropriate date (leadanndats) */
/*If the forecast is issued in the same month as earnings announcement,        */
/*use the imperfect inequality while populating into monthly frequency         */
 create table Dispersion
  as select *
  from Base a left join _Temp2 (drop=yearmon) b
  on a.ticker=b.ticker and
 ((b.anndats <= a.date < b.leadanndats)*(anndats_me < leadanndats_me)
  or
 (b.anndats<=a.date<=leadanndats_me and anndats_me=leadanndats_me))
 order by a.ticker, a.date, b.analys, b.fpedats, b.anndats;
quit;

/*Sanity Check. Should be no full duplicates*/
Proc Sort Data=Dispersion noduprec; by _all_;run;

/* For a given (Ticker,Year,Month,Analyst Forecast) combination, keep only those   */
/* records with the closest Fiscal Period End. Populate missing PERMNO              */
Proc Sort Data=Dispersion; by ticker date analys fpedats anndats;run;

Data Dispersion; set Dispersion;
 by  ticker date analys fpedats anndats;
 retain permno1;
 if not missing(permno) then permno1=permno;
 if first.ticker then permno1=permno;
 drop permno; rename permno1=permno;
 if first.analys;
run;

/*link in the CRSP price data. Construct mean monthly price approximation*/
Data Price/view=Price; set Crsp.Msf;
 by permno date;
 date=intnx('month',date,0,'E');
 mean_price=(abs(prc/cfacpr)+lag(abs(prc/cfacpr)))/2;
 if first.permno then mean_price=abs(prc/cfacpr);
 keep permno date mean_price;
run;

/* Calculate two versions of analyst forecast dispersion: one scaled by absolute */
/* mean forecast value (DISP1), the other scaled by mean monthly price (DISP2)   */
Proc Sql;
 create table Disp_Final
  as select distinct a.ticker, a.date, a.lead_date, a.permno,
  count(distinct analys) as analysts
```

```
  label='Number of analysts with outstanding valid forecast as of prior month-end',
  std(a.value)/abs(mean(a.value)) as disp1
  label='Analyst Forecast Dispersion in prior month
        (scaled by absolute mean forecast)',
  std(a.value)/b.mean_price as disp2
  label='Analyst Forecast Dispersion in prior month (scaled by mean monthly price)'
  from Dispersion a left join Price b
  on a.permno=b.permno and a.date=b.date
 group by a.ticker, a.date
 order by a.ticker, a.date, analysts, disp1, disp2;
quit;

/* Keep records with non-missing price data for ambiguous      */
/* IBES Ticker-CRSP Permno matches - those will be last record */
/* for a given (ticker-date) pair                              */
Data Disp_Final; set Disp_Final;
 by ticker date;
 if last.date;
run;

/*Put all DIVOP measures together*/
Proc Sql;
 create table Home.Divergence
  as select *
  from Suv c left join
   (select a.permno, a.date, a._rmse_ as volatility
    label='Daily Stock Volatility (STD) over the estimation period',
    b.ticker, b.analysts, b.disp1, b.disp2
    from Params_all
   (where=(upcase(_depvar_)='RET' and sum(_p_,_edf_)>= 0.8*&estwindow)) a
   left join Disp_Final b
   on a.permno=b.permno and put(a.date,yymmn.)=put(b.lead_date, yymmn.)) d
  on c.permno=d.permno and c.date=d.date
 order by c.permno, c.date;
quit;

/*House Cleaning*/
Proc Sql;
 drop table Disp_Final, Dispersion, _Temp2, _Sample, Suv, Params, Crsp_D,
            Params_all, Start, _Caldates, Volume, Volume1, Volume2;
 drop view  Vol,Price, Base, Stopped, Excluded, _Temp1, _Temp, Market_Turn;
quit;

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/* ********************************************************************************* */
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