Measuring Flight-to-Safety in Foreign Private Net Purchases of U.S. Treasury Securities

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Abstract

This paper is the first one to quantify the importance of flight to safety into U.S. Treasury securities by foreign private investors. The chief novelty is the provision of a method to estimate a benchmark for net purchases of these securities that differentiates between flight to safety and portfolio re-allocation. We use this benchmark to judge whether these net purchases are unusually large and then use the excess of net purchases as our estimate of flight to safety.

1 Introduction

Cross-border portfolio flows are often characterized as exhibiting flight to either quality or safety. Indeed, Baele, Bekaert, Inghelbrecht, and Wei (2012) document that between August 2004 and June 2012, the *Financial Times* referred 805 times to "Flight(s)-to-Quality" and 533 times to "Flight(s)-to-Safety." Flight to safety is of interest also to U.S. monetary policy:

> For example, the decline in the dollar since February 2009 that I just noted followed a comparable increase in the dollar, which largely reflected *flight-to-safety* flows triggered by the financial crisis in the latter half of 2008; the dollar's decline since then in substantial part reflects the reversal of those flows as the crisis eased. Ben Bernanke (2011, emphasis added)[1]

Bernanke's claim is seemingly consistent with the data: Net purchases of short-term Treasury securities in late 2008, and the subsequent sales, are unprecedented (figure 1, bottom).
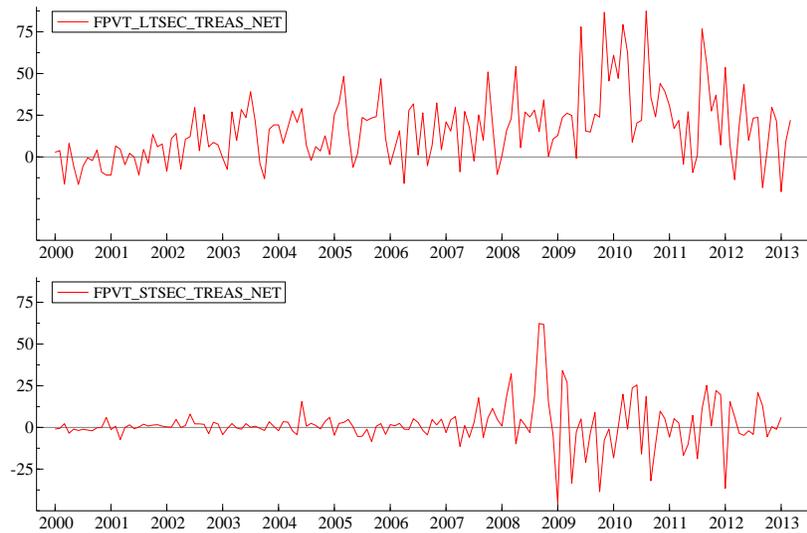

Figure 1: Foreign Private Net Purchases of Treasury Securities – long-term (top) and short-term (bottom)

Nevertheless, Bernanke's claim could be challenged: Should the entire increase in net purchases in 2008 be treated as reflecting flight to safety and ignore that other factors are also at work? If not, how much of the net purchases in 2008 can be attributed to flight to safety? Further, if safe-seeking is the prime consideration for this increase, why is it that net purchases of long-term securities do not increase? Are they less safe or less liquid? Finally, given that net purchases of short-term Treasury securities have not reached the level they had in 2008, should one conclude that flight to safety was a one-off event? These questions would be irrelevant if there were a benchmark that would allows us to say "if net purchases exceed the benchmark, then we can be reasonably sure that there is flight to safety." But the literature does not provide such a benchmark.[2]

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[1] http://www.federalreserve.gov/newsevents/speech/bernanke20110607a.pdf
[2] For example, see Caballero and Kurlat (2008) and Engle et al. (2012).

Instead, the focus of literature is on explaining movements in yield differentials. This approach is not, however, suited for measuring flight to safety for several reasons. First, how can one be sure that movements in these yield differentials owe to demand considerations and not to supply considerations? Second, even if demand shifts were the overriding force, how can one be sure that movements in the yield spreads stem from increases in foreign demand and not from increases in domestic demand? We address these limitations by focusing on net purchases of U.S. Treasury securities by foreign private investors. Using net *purchases* addresses the source of the shock; focusing on *foreign private* addresses the source of the demand.

Our work treats flight to safety as an unforeseen development. Otherwise, it would be indistinguishable from conventional portfolio re-allocations and hence of no special interest. To identify the contributions portfolio considerations in movements of net purchases of U.S. Treasury securities, we use an econometric model with yield differentials, short and long, and changes in risk as explanatory variables. Using publicly available data, we divide the sample in two subsamples: the first subsample ends in 2006 and it is used to estimate its parameters. The second subsample starts in 2007 and ends in 2012 and it is used to generate one-step ahead predictions of net purchases. We test whether actual purchases are significantly greater than predicted purchases. If they are, then we measure flight to safety as the gap between actual net purchases and the upper bound of the 95−percent critical value of the distribution of net purchases.

2 Strategy

To differentiate flight to safety from conventional portfolio re-allocation we introduce two conditions. The first one is that net purchases of Treasuries need to be positive; it is hard to envision flight to safety while selling, on net, the asset that is deemed safe. The second condition is that net purchases need to exceed a time-varying benchmark. Denoting foreign private holdings of Treasuries as H, we express these necessary conditions as

$$\Delta H_t > 0 \tag{1}$$

$$\Delta H_t - \Delta H_t^b > 0, \tag{2}$$

where the superscript ^{b} denotes a benchmark.[3] However, ΔH_t^b is not known, and thus we estimate it in two steps.

In the first step we postulate a model of foreign private net purchases of U.S. Treasury securities:

$$\Delta H_t = \kappa + \phi(L) \cdot \boldsymbol{\Delta Z}_t + \theta \cdot \Delta H_{t-1} + v_t, \tag{3}$$

where κ is the amount of Treasury securities that mature and are redeemed during the observation period; L is the lag operator; ϕ is a vector of unknown parameters; $\mathbf{Z}_t$ is a vector of pre-determined variables; and $v_t \tilde{} IN(0, \sigma^2)$.[4] The first T observations are used for parameter estimation and the

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[3]Note that $\Delta H_t^b < 0$ is consistent with flight to safety. Further, though the inequality in equation (2) also holds when $\Delta H_t < \Delta H_t^b < 0$, equation (1) prevents treating this case as flight to safety.

[4]Seasonal analysis is not suitable to estimate the benchmark for net purchases. First, it assumes that every deviation between actual and seasonal owes to flight to safety and to nothing else, which is an extreme view. Second, the estimate of flight to safet at time T is, by design, influenced by events after T, which is not appropriate.

subsequent N observations are used to generate the 1-period ahead ex-ante predictions:

$$\widehat{\Delta H}_{T+h} = \widehat{\phi}_T(L) \cdot \mathbf{\Delta Z}_{T+h-1} + \widehat{\theta}_T \cdot \Delta H_{T+h-1}, h = 1, \ldots N \tag{4}$$

where the symbol $\widehat{\ }$ denotes an estimate.

In the second step, we argue that 1-period ahead prediction errors as such are not informative enough to detect flight to safety because $\widehat{\Delta H}_{T+h}$ is subject to uncertainty. We use the upper bound of the confidence interval of the distribution of $\widehat{\Delta H}_{T+h}$ as the benchmark:

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\begin{aligned}
\widehat{\Delta H}^b_{T+h} &= \widehat{\Delta H}_{T+h} + \alpha \cdot \overbrace{\left(\widehat{var}(\widehat{\Delta H}_{T+h}) \right)^{1/2}}^{\text{standard error of 1-step ahead prediction}} \\
&= \widehat{\Delta H}_{T+h} + \alpha \cdot \left(\underbrace{\widehat{var}(\widehat{\phi}_T \cdot \mathbf{\Delta Z}_{T+h-1})}_{\text{coefficient}} + \underbrace{\widehat{\sigma}^2_T}_{\text{model}} \right)^{1/2}
\end{aligned} \tag{5}
$$

where α is the critical value of the distribution associated with a α percent confidence band. As derived, $\widehat{\Delta H}^b_{T+h}$ recognizes two sources of uncertainty: coefficient estimation, $\widehat{var}(\widehat{\phi}_T \cdot \mathbf{\Delta Z}_{T+h-1})$, and model specification, $\widehat{\sigma}^2_T$.[5]

Conditioning on net purchases being positive, flight to safety $\mathcal{F}_t$ is measured as

$$\mathcal{F}_{T+h|\Delta H_{T+h}>0} = \Delta H_{T+h} - \widehat{\Delta H}^b_{T+h}. \tag{6}$$

Note that our measure of flight to safety is not the same as the model's prediction error but rather as the gap between actual net purchases and the upper bound of the confidence interval of the distribution of $\widehat{\Delta H}_{T+h}$.

3   Modeling Net Purchases

The estimation of ΔH^b_{T+h} needs a model of net purchases of U.S. Treasury securities by foreign private investors but capturing all the relevant factors is beyond the scope of this paper. Thus we focus on characterizing the importance of obvious factors: changes of rates of return, market volatility, and investors' wealth:

$$\Delta H = h(\mathbf{\Delta R}, \mathbf{\Delta r}, \Delta R_{us,}, \Delta\rho, \Delta W), \tag{7}$$

where $\mathbf{R}$ is a vector of yields of sovereign long-term bonds from Germany, Japan, and the United Kingdom, in local currency; $\mathbf{r}$ is a vector of yields from sovereign short-term securities for the same three countries, also expressed in local currency; R_{us} is the 10-year Treasury rate; ρ, is the risk associated with holding other assets relative to that of holding U.S. long-term Treasuries; and W is the value of foreign private wealth.

To parametrize $h(\cdot)$, we assume that

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[5] A third source, not coinsidered here, is the uncertainty about the measurement of Z.

1. portfolio decisions by foreign private investors are separable into their holdings of U.S. portfolio securities and their holding of assets from other countries. Thus we replace W with the dollar value of foreign private investors' portfolio claims on U.S. residents, ω;

2. h is homogenous of degree zero with respect to rates of return;

3. risk is a quadratic function of the VIX: $\rho = e_1 \cdot \upsilon + e_2 \cdot \upsilon^2$, where υ is the VIX;

4. the relation is linear in the parameters.

With these assumptions, the model for net purchases of Treasuries we postulate is

$$\Delta H_t = \kappa + \underbrace{a(L)\Delta\omega_t + \boldsymbol{\beta}(\mathbf{L})\Delta(\mathbf{R}_t - R_{us,t}) + \boldsymbol{\gamma}(\mathbf{L})\Delta(\mathbf{r}_t - R_{us,t}) + \delta_1(L)\Delta\upsilon_t + \delta_2(L)\Delta\upsilon_t^2}_{\phi(\mathbf{L})\cdot\mathbf{\Delta Z}_t} + \theta\Delta H_{t-1} + \upsilon_t.$$

(8)

The long-run coefficients implied by this equation are computed as $\frac{\widehat{\phi}_T(\mathbf{1})}{\widehat{\theta}_T}$. If $\mathbf{\Delta Z}_t = 0$, then net purchases are $\frac{\kappa}{1-\theta}$, which represents the monthly value of redemptions if $\kappa < 0$. Further, we expect that U.S. and foreign sovereign securities are substitutes for each other in the foreign private investors.[6]

4 Econometric Work

Implementing our framework involves several steps:

1. Use the first T observations for estimating parameters and the remaining N observations for 1-step ahead predictions.

2. Assess congruency by testing the properties of the residuals (serial independence, homoskedasticity, and normality) and the stability of the parameter estimates.

3. Generate estimates of the distribution for 1-step ahead predictions for net purchases for period $T + h$ using parameter estimates based on information through T only and predetermined variables through $T + h - 1$.

4. Test whether net purchases at time $T+h$ exceed their expected value. If they do, then estimate flight to safety as the difference between the actual value of net purchases and the α-percent critical value of the distribution.

Estimation of Parameters For parameter estimation we apply ordinary least squares to equation (8) using monthly data from January 2000 to December 2006. Data for net purchases come from Treasury's International Capital (TIC) system. TIC reports foreign transactions by all foreign residents and by foreign officials. Hence, foreign private transactions are computed as the difference between these two.[7] Data for U.S. and foreign yields, short and long, come from the St. Louis Federal Reserve database FRED. Data for the VIX come from the Chicago Board Options Exchange.

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[6] Though alternative empirical formulations are possible, we have delayed the task of developing an encompassing model for U.S. Treasuries.

[7] See http://www.treasury.gov/resource-center/data-chart-center/tic/Documents/tressect.txt

For net purchases of U.S. long-term securities, the results suggest that the only variable that matters is foreign private investors' claims on U.S. securities (table 1). A dollar increase in such holdings raises net purchases of U.S. long-term Treasuries by 50 cents. For net purchases of U.S. short-term securities, the results suggest that the only relevant variable is the differential between short-term foreign sovereign yields and the U.S. long-term yield (table 1). A one percent increase in this differential lowers net purchases of short-term securities by $0.4 billion.

At this level of aggregation, one may argue that the lack of interest-rate effects owes to a volatility of net purchases that is considerable greater than the volatility of interest rate differentials. Further, if yield differentials move together, then some of them might be redundant for explaining net purchases. To study these possibilities, we implement the Autometrics algorithm. This algorithm combines ordinary least squares with a search procedure that reduces the number of parameter estimates without sacrificing information either in predictive power or in consistency with the maintained assumptions for the disturbance (white noise). This algorithm is appealing because it ignores whatever pre-conceived views we may have on what matters statistically. We find that the lack of statistical significance of interest-rate differentials is not robust: An increase in the German short-rate rate reduces net purchases of short-term Treasuries by foreign private investors. Further, stock-market volatility is relevant: an increase in the VIX raises net purchases of long-term and long-term Treasuries.

Congruency Congruency is central to identifying flight to safety. For example, finding that the residuals are serially correlated would contradict the view that flight to safety is an unforeseen development. Similarly, evidence of instability in the variance of the residuals might induce movements in the residuals that are unrelated to flight to safety and hence not suitable for our purposes.

For net purchases of long-term Treasuries, the residuals exhibit serial independence, homoskedasticity, and normality; further, the choice of functional form is not rejected (table 1). For short-term Treasuries, the choice of functional form is rejected. Further, the 95 percent confidence band for the recursive coefficient estimates suggest that we can treat these estimates as constants (figures 2 and 3).

Table 1: Parameter Estimates for Foreign Private Net Purchases of U.S. Treasury Securities -- Jan 2000 to Dec 2006

	Long-term U.S. Treasury Securities				Short-term U.S. Treasury Securities			
	General		Specific		General		Specific	
	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value	Coefficient	t-value
Redemption (billions per month)								
Constant	-16.90	-1.42	-14.09	-2.91	2.08	1.31	0e	--
Differential long-term nominal rates								
$\Delta(R_{ge} - R_{us})$	2.38	0.04	0e	--	2.33	0.28	5.03	0.73
$\Delta(R_{uk} - R_{us})$	18.55	0.33	0e	--	-2.73	-0.37	-7.95	-1.57
$\Delta(R_{jp} - R_{us})$	18.31	0.54	0e	--	0.43	0.10	0e	--
Differential short-term nominal rates								
$\Delta(r_{uk} - r_{us})$	9.57	0.27	0e	--	9.34	2.04	13.54	3.32
$\Delta(r_{jp} - r_{us})$	20.78	0.52	0e	--	3.55	0.68	0e	--
$\Delta(r_{ge} - r_{us})$	-45.10	-1.44	-14.01	-1.92	-10.15	-2.41	-9.88	-3.12
Risk								
Δv	0.53	1.48	0.49	2.96	0.07	1.61	0.06	2.31
Δv^2	0.00	-0.20	0e	--	0.00	-0.37	0.00	0.94
Wealth								
$\Delta \omega$	0.52	3.77	0.45	5.43	0.02	1.02	0.02	2.99
Model Fit								
SER	9.75		8.96		3.23		3.04	
se(Y)	14.61		14.61		3.42		3.42	
Ratio SER/se(Y)	0.67		0.61		0.94		0.89	
OBS	84		84		84		84	
Parameters	31		7		31		12	
*Properties of residuals**								
Null hypothesis								
Serial Independence	0.42		0.90		0.27		0.59	
Auto Reg. Homoskesdasticity	0.93		0.28		0.69		0.89	
Normality	0.31		0.15		**0.00**		**0.04**	
Suitable Functional Form	0.37		0.43		0.12		**0.02**	
Memo item								
lagged coefficient	0.53	0.14	0.42	0.10	-0.14	0.14	0e	

0e: Variable excluded by Autometrics.
*P-values for rejecting the null hypothesis. The tests for white noise are implented in OxMetrics and are described in Doornik and Hendry (2007) pp. 278-284.
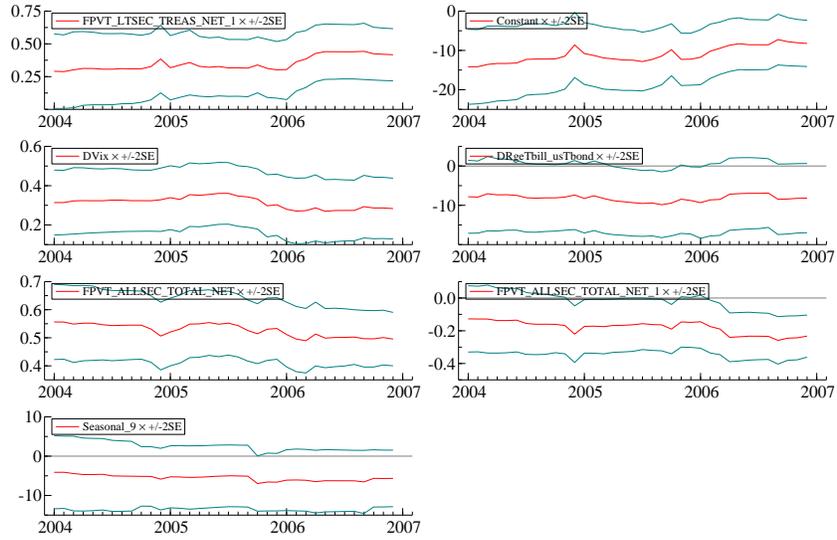
Figure 2: 95% confidence band of recursive estimates for Long-term Treasury Securities
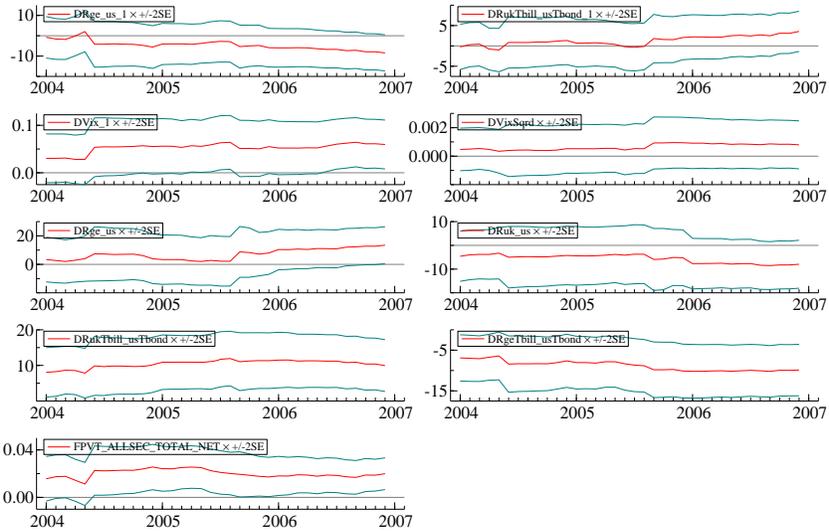

Figure 3: 95% confidence band of recursive estimates for Short-term Treasury Securities

Overall, the results suggest that congruency is met, which helps avoiding confusing model misspecifications with flight-to-safety.

Out-of-sample Predictions Figure 4 displays actual net purchases of long-term Treasury securities and the associated 95 percent confidence band for the 1-step ahead predictions. Points a, a' and a'' correspond to net purchases that exceed the prediction. The associated excess are not, however, statistically different from zero and thus they do not meet our criteria for flight to safety. Points b, b' and b'' correspond to net purchases that are statistically greater than the model's prediction at the 5 significance level; these points meet our definition of flight to safety.
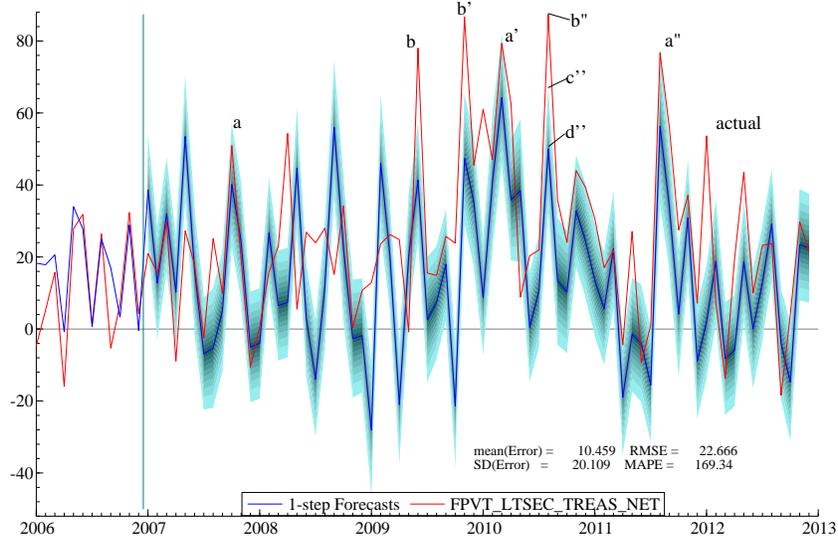
Figure 4: 95% confidence band of 1-step ahead predictions for Long-term Treasury Securities

Figure 5 displays actual net purchases of short-term Treasury securities and the associated 95 percent confidence band for the 1-step ahead predictions. Point a represents positive net purchases that exceed the confidence band (b). Thus a meets our criteria for flight to safety.
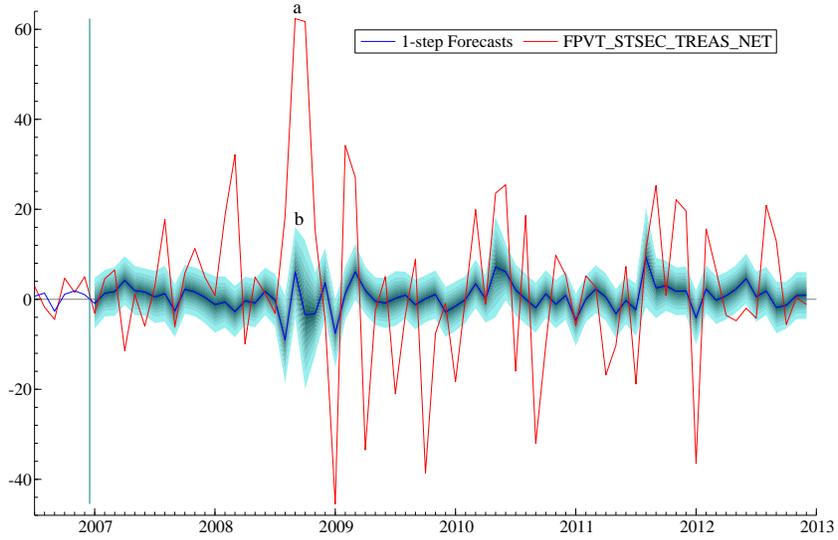
Figure 5: 95% confidence band of 1-step ahead predictions for Short-term Treasury Securities

Flight to Safety   To measure flight to safety, we compute the gap between actual net purchases and its benchmark:

$$\mathcal{F}_{T+h|\Delta H_{T+h}>0} = \Delta H_{T+h} - [\widehat{\Delta H}_{T+h} + \alpha \cdot \left(\widehat{var}(\widehat{\Delta H}_{T+h}^b)\right)^{1/2}]. \tag{9}$$

For long-term Treasury securities, flight to safety is generally a small fraction of actual net purchases (figure 6). For short-term Treasury securities, however, flight to safety is quite close to actual net purchases in late 2008 (figure 7). This result corroborates Bernanke's claim that during 2008, safe-seeking motives were the main driving force of net purchases.
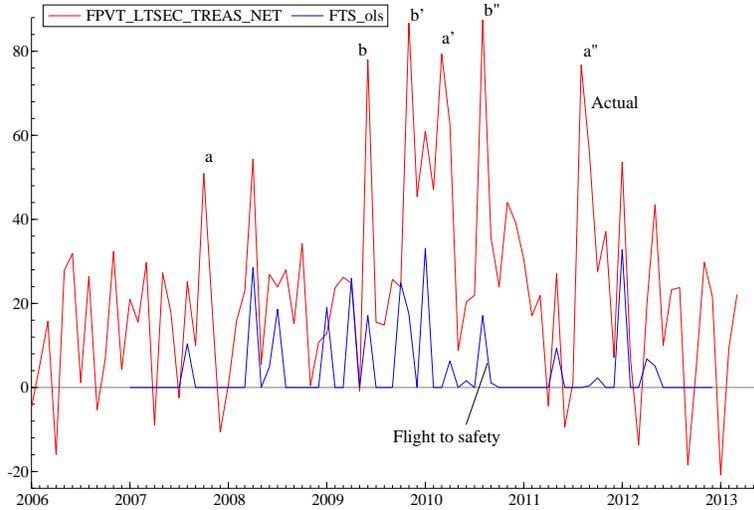
Flight to Safety - Foreign Private Net Purchases of U.S. Long-term Treasury Securities
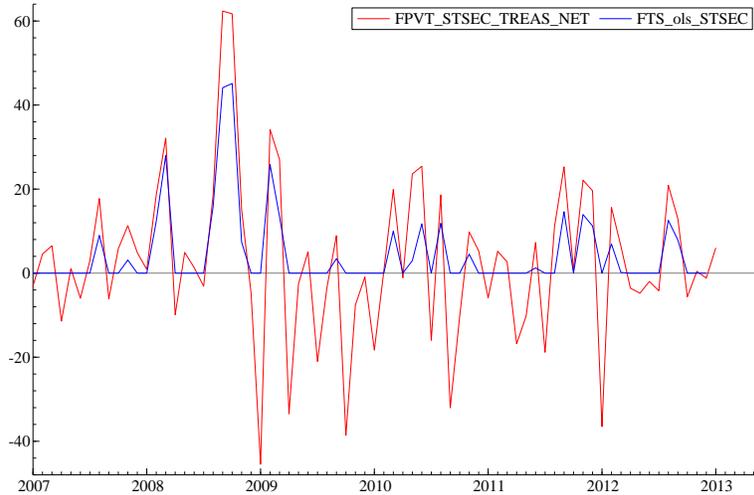
Flight to Safety - Foreign Private Net Purchases of U.S. short-term Treasury Securities

5   Robustness

Comparing our results to the literature is not easy because we are the first, as far as we know, to report measures of flight to safety. As an alternative, we look for *dates* for which we claim there

was flight to safety (FTS) and dates for which we claim there was no flight to safety (No FTS). We compare our dates with those reported by both Engle et al. (2012) and the media. The table below shows the dates in which both our study and Engle's et al. predict the presence or absence of a flight to safety episode:

Flight to Safety Dates: Jan 2007 - Jun. 2010

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2007	-	E	-	-	-	-	-	us	-	E, us	us	-
2008	-	E, us	us	-	-	E, us	-	us	E, us	E, us	E, us	E
2009	-	E, us	E, us	-	-	us	-	-	us	-	us	-
2010	-	-	-	us	E, us	E, us						

E stands for Engle et al.; us stands for this paper.

The results from both papers point to Lehman's bankruptcy as an episode that coincided with flight to safety. More generally, out of 42 months, predictions from both studies coincide on 32 months (76 percent): 22 months in which the studies' claim there was no flight to safety and 10 in which they claim there was flight to safety:[8]

		Engle et al. (2012)	
		No FTS	FTS
This	No FTS	22	2
Study	FTS	8	10

Reassuring as it might be, shared predictions is not evidence of useful predictions. For example, if both studies suffer from a common flaw, then they could share predictions, even though these might be flawed.

So we now compare the dates implied with our predictions to those that have been reported in the media for either flight to safety or flight to quality. We argue that if the number of reports on flight to safety is above the average number of reports across all months, then that media is predicting flight to safety for that month. To be sure, a major limitation of this comparison is that the reporters' definition of flight to safety need not be the same as ours. The table below shows the extent to which both sources yield the same prediction:

		Media	
		No FTS	FTS
This	No FTS	17	7
Study	FTS	7	11

Again, the comparison reveals substantial agreement between the media and our work. Specifically, out of 42 months, both predictions coincide on 28 months (61 percent): 17 months in which both sources claim there was no flight to safety and 11 in which they claim there was flight to safety; the appendix reports the monthly frequency of such reports, along with the associated internet links.[9]

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[8] The appendix reports such dates for both studies.

[9] Though we cannot be sure that what the media is reporting as flight to safety is conceptually identical to what we report, it is difficult for us to insist that we predicting a phenomenon that is not perceptible by anyone else.

6 Conclusions and Limitations

This paper is the first one to quantify the importance of flight to safety into U.S. Treasury securities by foreign private investors. The chief novelty is the provision of a method to estimate a benchmark for net purchases of these securities that differentiates between flight to safety and portfolio re-allocation. We use this benchmark to judge whether these net purchases are unusually large and then use the excess of net purchases as our estimate of flight to safety.

Not surprisingly, this paper has numerous limitations. First, measurement errors in Treasury's raw data complicates the identification of flight to safety. Second, the specifics of the modeling strategy matter for estimating the benchmark and hence further work is needed. Specifically, though our econometric model of net purchases is congruent, we have yet to show that it encompasses other models. Third, we treat differentials in bond yields as given. Fifth, there is no compelling reason to treat large surprises as being driven only by flight to safety: large and unknown idiosyncratic factors could also produce large underpredictions. Finally, we ignore feedbacks between forecasts of net purchases and investment decisions. In brief, not an inconsequential list. Nevertheless we anticipate that addressing these limitations will validate the method, if not the conclusions, offered here.

References

[1] Baele, L., G. Bekaert, K. Inghelbrecht, and M. Wei, 2012, "Flights to Safety," National Bank of Belgium, Working Paper Research No. 230.

[2] Caballero, Ricardo J. and Kurlat, Pablo D., 2008, "Flight to Quality and Bailouts: Policy Remarks and a Literature Review" MIT Department of Economics Working Paper No. 08-21.

[3] Doornik, Jurgen and David F. Hendry, 2007, *Empirical Econometric Modeling*, volume 1, London: Timberlake.

[4] Engle, Robert, Michael Fleming, Eric Ghysels, Giang Nguyen, 2012, "Liquidity, Volatility, and Flights to Safety in the U.S. Treasury Market: Evidence from A New Class of Dynamic Order Book Models," Federal Reserve Bank of New York Staff Reports No. 590.

References to Flight to Safety from the Media

	FTS	FTQ	US
Jan-07	1	0	no
Feb-07	2	3	no
Mar-07	5	9	no
Apr-07	0	2	no
May-07	0	1	no
Jun-07	1	3	no
Jul-07	4	6	no
Aug-07	3	5	yes
Sep-07	2	5	no
Oct-07	1	4	yes
Nov-07	2	7	yes
Dec-07	4	5	no
Jan-08	3	7	no
Feb-08	1	5	yes
Mar-08	3	9	yes
Apr-08	1	3	no
May-08	1	1	no
Jun-08	0	3	yes
Jul-08	3	3	no
Aug-08	1	4	yes
Sep-08	9	12	yes
Oct-08	8	7	yes
Nov-08	5	4	yes
Dec-08	4	3	no
Jan-09	3	7	no
Feb-09	2	13	yes
Mar-09	2	3	yes
Apr-09	3	1	no
May-09	0	2	no
Jun-09	1	2	yes
Jul-09	2	1	no
Aug-09	0	0	no
Sep-09	3	0	yes
Oct-09	0	0	no
Nov-09	3	1	yes
Dec-09	0	3	no
Jan-10	1	0	no
Feb-10	2	4	no
Mar-10	0	1	no
Apr-10	3	4	yes
May-10	12	6	yes
Jun-10	4	2	yes

Mean		3	4
std dev		3	3

"Flight to safety"

Month	Count	URLs
Jan-07	1	http://www.ft.com/intl/cms/s/0/a638ce86-a765-11db-83e4-0000779e2340.html#axzz2TTaEj5M>
Feb-07	2	http://ww http://www.ft.com/intl/cms/s/0/399a04c8-c643-11db-be1a-000b5df10621.html#axzz2TTaEj5M>
Mar-07	5	http://ww http://ww http://ww http://ww http://www.ft.com/intl/cms/s/0/19fec416-d1d1-11db-b921-000b5df10621.htm
Apr-07	0	
May-07	0	
Jun-07	1	http://www.ft.com/cms/28bf5f6e-3519-11dc-bb16-0000779fd2ac.htm
Jul-07	4	http://ww http://ftalp http://ftalp http://www.ft.com/intl/cms/s/0/6c214786-3ca8-11dc-b067-0000779fd2ac.htm
Aug-07	3	http://ww http://ww http://www.ft.com/cms/ed5df69c-5016-11dc-a6b0-0000779fd2ac.htm
Sep-07	2	http://ww http://www.ft.com/cms/bd73ad18-6ae8-11dc-9410-0000779fd2ac.htm
Oct-07	1	http://www.ft.com/cms/65c38e76-7b82-11dc-8c53-0000779fd2ac.htm
Nov-07	2	http://ww http://www.ft.com/cms/8dbc45da-9ee6-11dc-b4e4-0000779fd2ac.htm
Dec-07	4	http://ww http://ww http://ww http://www.ft.com/cms/feb772d4-b47e-11dc-990a-0000779fd2ac.htm
Jan-08	3	http://ww http://ww http://www.ft.com/cms/bdfa0b30-cb8f-11dc-97ff-000077b07658.htm
Feb-08	1	http://www.ft.com/cms/225d6c80-e629-11dc-8398-0000779fd2ac.htm
Mar-08	3	http://ww http://ww http://www.ft.com/cms/ef412c80-f3fa-11dc-aaad-0000779fd2ac.htm
Apr-08	1	http://www.ft.com/cms/bcabbeea-161c-11dd-880a-0000779fd2ac.htm
May-08	1	http://www.ft.com/cms/3d6d2f6e-1bd1-11dd-9e58-0000779fd2ac.htm
Jun-08	0	
Jul-08	3	http://ww http://ww http://www.ft.com/cms/0cb21612-4a2c-11dd-891a-000077b07658.htm
Aug-08	1	http://www.ft.com/cms/a62fed76-686f-11dd-a4e5-0000779fd18c.htm
Sep-08	9	http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://www.ft.com/cms/483ad64a-8e53-11dd-9b46-0000779fd18c.htm
Oct-08	8	http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://www.ft.com/cms/4cf26d32-a4c0-11dd-b4f5-000077b07658.htm
Nov-08	5	http://ww http://ww http://ww http://ww http://www.ft.com/cms/88a5067e-b838-11dd-ac6d-0000779fd18c.htm
Dec-08	4	http://ww http://ww http://ww http://www.ft.com/cms/087dbce2-d382-11dd-989e-000077b07658.htm
Jan-09	3	http://ww http://ww http://www.ft.com/intl/cms/s/0/43181e62-ec12-11dd-8838-0000779fd2ac.html#axzz2Yh10mYt
Feb-09	2	http://ww http://www.ft.com/cms/5f273ce6-ffb8-11dd-b3f8-000077b07658.htm
Mar-09	2	http://ftalp http://www.ft.com/cms/182e200a-1973-11de-9d34-0000779fd2ac.htm
Apr-09	3	http://ww http://ww http://www.ft.com/cms/36bf2aee-30f4-11de-8196-00144feabdc0.htm
May-09	0	
Jun-09	1	http://www.ft.com/cms/6e1e87ba-56b4-11de-9a1c-00144feabdc0.htm
Jul-09	2	http://ww http://www.ft.com/cms/575cc770-76d1-11de-b23c-00144feabdc0.htm
Aug-09	0	
Sep-09	3	http://ww http://ww http://www.ft.com/intl/cms/s/0/b9804336-aa35-11de-a3ce-00144feabdc0.html#axzz2YxHwTik(
Oct-09	0	
Nov-09	3	http://ww http://ww http://www.ft.com/cms/46e88150-db84-11de-9424-00144feabdc0.htm
Dec-09	0	
Jan-10	1	http://www.ft.com/intl/cms/s/0/e81836f8-0aa3-11df-b35f-00144feabdc0.htm
Feb-10	2	http://ww http://www.ft.com/cms/0376cf22-20b6-11df-9775-00144feab49a.htm
Mar-10	0	
Apr-10	3	http://ww http://ww http://www.ft.com/cms/s/0/f1a6e24a-52e8-11df-813e-00144feab49a.htm
May-10	12	http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://ww http://www.ft.com/cms/s/0/498a7140-6926-11df-aa7e-00144feab49a.htm
Jun-10	4	http://ww http://ww http://ftalp http://www.ft.com/cms/s/0/b941b9e0-83dd-11df-ba07-00144feabdc0.htm
Jul-10	4	http://ww http://ww http://ww http://www.ft.com/cms/s/0/0d8bb98a-941c-11df-a3fe-00144feab49a.htm
Aug-10	3	http://ww http://ww http://www.ft.com/cms/s/0/ea74d0f0-aca6-11df-8582-00144feabdc0.htm
Sep-10	0	
Oct-10	2	http://ww http://ftalphaville.ft.com/2010/10/20/376196/gilt-free-bloodshed/
Nov-10	2	http://ww http://www.ft.com/cms/s/0/eb442b32-f74e-11df-8b42-00144feab49a.htm
Dec-10	0	
Jan-11	0	
Feb-11	0	
Mar-11	1	http://www.ft.com/cr http://www.ft.com/cms/s/0/3878d0f0-4f34-11e0-9038-00144feab49a.htm
Apr-11	2	http://ww http://www.ft.com/cms/s/0/8449d9ba-69ed-11e0-89db-00144feab49a.htm
May-11	1	http://www.ft.com/cms/s/0/a2076f5e-8580-11e0-ae32-00144feabdc0.htm
Jun-11	2	http://ww http://www.ft.com/cms/s/0/348cf66a-a0f6-11e0-adae-00144feabdc0.htm
Jul-11	5	http://ww http://ww http://ww http://ww http://www.ft.com/cms/s/0/84edf710-b395-11e0-b56c-00144feabdc0.htm
Aug-11	4	http://ww http://ww http://ww http://www.ft.com/cms/s/0/f5ff45f8-ca7e-11e0-94d0-00144feabdc0.htm
Sep-11	2	http://ww http://www.ft.com/cms/s/0/4e77b7e6-e5e7-11e0-8e99-00144feabdc0.htm
Oct-11	1	http://www.ft.com/cms/s/0/c8920c68-f64d-11e0-86dc-00144feab49a.htm
Nov-11	4	http://ww http://ww http://ww http://www.ft.com/cms/s/0/9bc42c76-15f0-11e1-a691-00144feabdc0.htm
Dec-11	2	http://ww http://www.ft.com/intl/cms/s/0/df984c86-323b-11e1-9be2-00144feabdc0.html#axzz2aGBJ5vsF
Jan-12	0	
Feb-12	0	
Mar-12	1	http://www.ft.com/cms/s/0/8231bfec-6782-11e1-b4a1-00144feabdc0.htm
Apr-12	0	
May-12	2	http://ww http://www.ft.com/cms/s/0/95c9ba6e-aa76-11e1-899d-00144feabdc0.htm
Jun-12	3	http://ww http://ww http://www.ft.com/cms/s/0/4bd082ec-c067-11e1-982d-00144feabdc0.htm
Jul-12	2	http://ww http://www.ft.com/cms/s/0/7c32f1c2-da61-11e1-a413-00144feab49a.htm
Aug-12	0	
Sep-12	0	
Oct-12	0	

"Safe haven"

Month	Count	Links
Jan-07	0	
Feb-07	3	http://www http://www http://www.ft.com/intl/cms/s/0/4b54a280-c5cc-11db-9fae-000b5df10621.html#axzz2TTaEj5MX
Mar-07	9	http://www http://www http://www http://www http://www http://www http://www http://www http://www.ft.com/intl/cms/s/0/efd076a0-d750-11db-b9d7-000b5df10621.html#axzz2TfoD0fh1
Apr-07	2	http://www http://www.ft.com/intl/cms/s/0/dc9e7cf8-e790-11db-8098-000b5df10621.html#axzz2TfoD0fh1
May-07	1	http://www.ft.com/intl/cms/s/0/dc9e7cf8-e790-11db-8098-000b5df10621.html#axzz2TfoD0fh1
Jun-07	3	http://www http://www http://www http://www http://www.ft.com/cms/b4cec412-2660-11dc-8e18-000b5df10621.html
Jul-07	6	http://www http://www http://www http://www http://www http://www.ft.com/cms/e95f15b0-3b96-11dc-8002-0000779fd2ac.html
Aug-07	5	http://www http://www http://www http://www http://www.ft.com/intl/cms/s/0/0bf9a3ac-4ca8-11dc-a51d-0000779fd2ac.html
Sep-07	5	http://www http://www http://www http://www http://www.ft.com/cms/b7b1b582-6abb-11dc-9410-0000779fd2ac.html
Oct-07	4	http://www http://www http://www http://www.ft.com/cms/2b77f882-8254-11dc-8a8f-0000779fd2ac.html
Nov-07	7	http://www http://www http://www http://www http://www http://www http://www.ft.com/cms/198a1f0e-9c8c-11dc-bcd8-0000779fd2ac.html
Dec-07	5	http://www http://www http://www http://www http://www.ft.com/cms/63675688-b784-11dc-96f3-0000779fd2ac.html
Jan-08	7	http://www http://www http://www http://www http://www http://www http://www.ft.com/cms/0e0a5842-cfea-11dc-9309-0000779fd2ac.html
Feb-08	5	http://www http://www http://www http://www http://www.ft.com/cms/e4490392-d90c-11dc-8b22-0000779fd2ac.html
Mar-08	9	http://ftalp http://www http://www http://ftalp http://www http://www http://www http://www http://www.ft.com/cms/b8b72464-fcdb-11dc-961e-000077b07658.html
Apr-08	3	http://www http://www http://www.ft.com/cms/d9746dd0-0c5b-11dd-86df-0000779fd2ac.html
May-08	1	http://www.ft.com/cms/4115ebb0-1d61-11dd-82ae-000077b07658.html
Jun-08	3	http://www http://www http://www.ft.com/cms/a7e6e13e-43e8-11dd-842e-0000779fd2ac.html
Jul-08	3	http://www http://www http://www.ft.com/cms/e7937924-51cf-11dd-a97c-000077b07658.html
Aug-08	4	http://www http://www http://www http://www.ft.com/cms/d8f01de0-7359-11dd-8a66-0000779fd18c.html
Sep-08	12	http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www.ft.com/cms/f37d4bc4-8e4d-11dd-9b46-0000779fd18c.html
Oct-08	7	http://www http://www http://www http://www http://www http://www http://www.ft.com/cms/e20f10cc-a674-11dd-95be-000077b07658.html
Nov-08	4	http://www http://www http://www http://www.ft.com/cms/e4419b4e-bad8-11dd-bc6c-0000779fd18c.html
Dec-08	3	http://www http://www http://www.ft.com/cms/1d8771fa-d594-11dd-a9cc-000077b07658.html
Jan-09	7	http://www http://www http://www http://www http://www http://www http://www.ft.com/intl/cms/s/0/d7d9d91e-e933-11dd-9535-0000779fd2ac.html#axzz2Yh10mYtl
Feb-09	13	http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www http://www.ft.com/cms/d8baa0ae-0213-11de-8199-000077b07658.html
Mar-09	3	http://www http://www http://www.ft.com/cms/003f0422-1cf8-11de-977c-00144feabdc0.html
Apr-09	1	http://www.ft.com/cms/a290c3b6-241c-11de-9a01-00144feabdc0.html
May-09	2	http://www http://www.ft.com/cms/06017890-40e8-11de-8f18-00144feabdc0.html
Jun-09	2	http://www http://www.ft.com/cms/ff6d88ec-5ec5-11de-91ad-00144feabdc0.html
Jul-09	1	http://www.ft.com/cms/575cc770-76d1-11de-b23c-00144feabdc0.html
Aug-09	0	
Sep-09	0	
Oct-09	0	
Nov-09	1	http://ftalphaville.ft.com/2009/11/27/85756/a-golden-sell-off/
Dec-09	3	http://www http://www http://www.ft.com/cms/s/0/36ac0640-e6a6-11de-98b1-00144feab49a.html
Jan-10	0	
Feb-10	4	http://www http://www http://www http://www.ft.com/cms/360efd04-2310-11df-a25f-00144feab49a.html
Mar-10	1	http://ftalphaville.ft.com/2010/03/19/180001/fed-could-raise-discount-rate/
Apr-10	4	http://www http://www http://www http://www.ft.com/cms/s/0/2e483ecc-5327-11df-813e-00144feab49a.html
May-10	6	http://www http://www http://www http://ftalp http://www http://ftalphaville.ft.com/2010/05/20/237416/aussie-loses-to-fresh-yen-for-safe-havens/
Jun-10	2	http://www http://ftalphaville.ft.com/2010/06/14/259091/back-to-the-future-by-bis/