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Who Buys Treasury Securities at Auction?

Michael J. Fleming

The U.S. Treasury Department now releases fuller information about its auctions than in the past, including new information on investor class and bidder category. The investor class data shed light on the distribution of demand for government securities, and the bidder category data, released first, offer an early read on demand. Purchases by indirect bidders, in particular, are a fairly good proxy for foreign purchases of Treasury notes, but not Treasury bills.

In recent years, the U.S. Treasury Department has expanded the information it routinely releases about purchases of its securities at auction. It now reports purchases by bidder category after each auction and discloses purchases by investor class with a shorter lag, and for a broader group of securities, than in the past. The additional, more timely data may be useful in understanding the performance of individual securities.[1] A more direct application of the data, however, is in understanding the distribution of demand for government securities across investor groups.

Foreign official accounts, in particular, held $1.3 trillion of Treasury securities at the end of 2005, or about 30 percent of all marketable Treasury securities outstanding.[2] The amount purchased by "indirect" bidders is often assumed to be a proxy for purchases by foreign central banks, and is sometimes used to draw inferences about such banks' continued willingness to buy Treasury securities more generally.[3]

This edition of *Current Issues* describes the information available on the buyers of U.S. Treasury securities at auction and evaluates the extent to which the indirect bid is a good proxy for purchases by foreign investors as a group—that is, both foreign central banks and foreign private investors. The article begins with a description of auction data and an account of how disclosure has changed in recent years. Summaries of the bidder category and investor class data follow. The bidder category and investor class data are then compared in order to illuminate the bidding methods used by various investor classes and to assess how well the indirect bid explains purchases by foreign investors.

The analysis reveals that the indirect bid is a fairly good proxy for foreign purchases of Treasury notes (securities with original maturities of more than one, but not more than ten years), but not Treasury bills (securities with original maturities of one year or less). The indirect bid is an imperfect proxy for foreign purchases of Treasury securities because other investors also bid indirectly. For bills, in particular, differences in the indirect bid across auctions are driven more by variation in investment fund purchases than by variation in foreign investor purchases.

Publicly Available U.S. Treasury Security Auction Data

The Treasury Department releases data on its auctions through a number of announcements and disclosures. In advance of an auction, a press release provides details of an offering, including the offering amount and the term and type of security being offered. The announcement also discloses the quantity of securities that the Federal Reserve

has maturing on the issuance date—securities whose proceeds might be reinvested in the new security. In addition, the announcement reveals the amount of the new security that investors in TreasuryDirect are scheduled to purchase.[4]

Auction participants bid competitively or noncompetitively. Competitive bidders indicate the minimum yield they are willing to accept for a specified quantity of securities. Noncompetitive bidders specify the quantity of securities they are willing to buy at whatever price is paid by successful competitive bidders. All noncompetitive bids are accepted (subject to quantity limits). Competitive bids are then accepted in order of increasing yield until the offering amount is covered. All successful bidders pay the same price, computed from the highest accepted yield.

Within minutes of the auction deadline, the Treasury releases the auction results, including the highest accepted yield, the associated price, and, for notes and bonds, the coupon rate of the new security. Also announced are the quantity of securities awarded to the Fed, the quantity awarded to foreign and international monetary authorities for noncompetitive bids made through the Federal Reserve Bank of New York, and the quantity awarded to other noncompetitive bidders. In addition, the Treasury discloses the quantity of securities awarded to investors in TreasuryDirect.

Also within minutes of the auction close, the Treasury releases a post-auction addendum with information on competitive bids and awards by bidder category. This announcement discloses the quantity of securities that primary dealers, other direct bidders, and indirect bidders have bid for, as well as the quantity of securities awarded to each of these groups. Primary dealers are institutions that have a trading relationship with the Federal Reserve Bank of New York; other direct bidders are financial institutions that place their bids directly with the Treasury. Indirect bidders are bidders that place their bids through direct submitters; this group includes foreign and international monetary authorities that place their bids through the Federal Reserve Bank of New York.

The next release of data occurs on the seventh business day of the month following each auction. At that time, the Treasury discloses information on the purchases of its securities by investor class. The reported classes are Federal Reserve Banks, depository institutions (including banks), individuals (including partnerships and personal trust accounts), dealers and brokers, private pension and retirement funds and insurance companies, investment funds, foreign and international investors, and "other" investors.

Recent Changes in Data Release Practices

Some of the information released by the Treasury is relatively new. The post-auction addendum was introduced by the Treasury in May 2003 "to improve the transparency and performance" of its auctions.[5] The bidder category data included in this addendum are often mentioned in auction commentary because they are thought to provide an early indication of a security's buyers. In particular, the proportion of securities sold to indirect bidders is commonly cited as a proxy for purchases by foreign central banks.[6]

Additional changes were introduced in May 2005.[7] Until then, the Treasury only released investor class allotment data for coupon securities and only on a quarterly basis in its *Treasury Bulletin* publication. In May 2005, the Treasury switched to a monthly release schedule, expanded the securities covered to include bills, and released a history of the bill data going back to August 2001.

Limitations of the Auction Data

Although the Treasury now releases more auction data than in the past, the information available about the ownership of specific securities remains limited. The bidder category and investor class data reveal only the allocation of securities at auction. However, the ownership structure of issues can and does change markedly over securities' life cycles. Primary dealers, in particular, buy large quantities of securities at auction and then sell them in the secondary market. Some of these securities are sold after a security is issued; others are sold before issuance in the so-called when-issued market.

[1]Jordan and Jordan (1997) show that the share of an issue bought by dealers is related to an issue's future borrowing costs and that expected future borrowing costs are capitalized into prices.

[2]These holdings are understated to the extent that such accounts buy and hold securities indirectly through a foreign broker. Foreign investors as a whole held $2.2 trillion in Treasury securities as of the same date. Foreign ownership data are from the U.S. Department of the Treasury (<http://www.treas.gov/tic>) and described in Sobol (1998). Marketable Treasury debt outstanding, $4.2 trillion as of the end of 2005, is from the Treasury's Monthly Statement of the Public Debt (<http://www.publicdebt.treas.gov/opd/opdhisms.htm>).

[3]For example, weak participation by indirect bidders at an August 2005 five-year-note auction "raised concerns that foreign central banks may be losing interest in U.S. government securities" ("Treasury Prices Wilt as Auction Bidding Raises Some Concern," *Wall Street Journal Europe*, August 11, 2005, p. M3).

[4]TreasuryDirect is a proprietary Treasury book-entry system for retail investors who buy securities at auction and typically hold them to maturity. The system operates in tandem with the commercial book-entry system used by dealers, depository institutions, and other institutional investors. Garbade and Ingber (2005) describe these systems and the Treasury auction process more generally.

[5]May 2003 Quarterly Refunding Statement of Assistant Secretary for Financial Markets Brian C. Roseboro, April 30, 2003 (<http://www.treas.gov/press/releases/js223.htm>).

[6]See, for example, "Foreign Central Banks May Have Aided 5-Yr Treasury Sale," Shayna Stoyko, Dow Jones Newswires, June 8, 2005.

[7]See May 2005 Quarterly Refunding Statement of Assistant Secretary for Financial Markets Timothy S. Bitsberger, May 4, 2005 (<http://www.treas.gov/press/releases/js2420.htm>).

Despite these limitations, the auction data remain the sole source of information on the ownership of particular Treasury issues. In addition, although an issue's ownership can change over time, the allocation of an issue at auction sheds some light on an issue's future borrowing costs and presumably value (Jordan and Jordan 1997). Moreover, the fact that the bidder category data come out promptly—weeks before the investor class data—explains why they are monitored for ownership information.

What the Bidder Category Data Show

The bidder category data show that primary dealers alone account for 70.9 percent of Treasury securities sold to the public, on average (Table 1).[8] Direct bidders other than primary dealers buy 2.4 percent, and indirect bidders buy 21.6 percent. The average purchase share of noncompetitive bidders is 5.1 percent. The large share of securities bought by primary dealers is notable given that there are only twenty-two of these institutions, whereas more than 800 financial institutions are set up to bid directly in Treasury auctions.[9]

Purchase shares by bidder category vary significantly across auctions. Primary dealers have bought as little as 33.6 percent of an issue in recent years and as much as 100 percent. Other direct bidders have bought as much as 31.6 percent of an issue competitively, and indirect bidders have bought as much as 64.8 percent.

Security type alone can explain much of the variation in bidder category purchase shares (Table 2). Dealer shares are higher for bills (73.7 percent) than for both nominal and inflation-protected notes and bonds, and higher for nominal notes and bonds (60.2 percent) than for inflation-protected securities (53.5 percent). Relatively high dealer participation at bill auctions likely reflects other investors' lack of interest in very short-term bills. Conversely, relatively low dealer participation at auctions of inflation-protected securities may reflect the limited use of these securities as hedging and trading instruments (Sack and Elsasser 2004).

Bidder category shares also vary across issues of particular maturities, most notably for bills (Chart 1). Dealer shares for bills decline with issue maturity from 93.1 percent for cash management bills, to 84.7 percent for four-week bills, 66.3 percent for thirteen-week bills, and 63.1 percent for twenty-six-week bills. The miniscule noncompetitive shares for cash management and four-week bills are at least partly explained by auction rules that prohibit TreasuryDirect investors from buying cash management bills and, until October 2005, four-week bills. The small indirect bidder shares for cash management and four-week bills may simply reflect certain investors' lack of interest in these securities because of their short maturities, high issue-size variation and, in the case of cash management bills, irregular issuance schedule.

Table 1
Bidder Category Purchase Shares for All Treasury Securities

Category	Mean	Standard Deviation	Minimum	Maximum
Primary dealer	70.9	14.6	33.6	100.0
Direct bidder	2.4	3.6	0.0	31.6
Indirect bidder	21.6	12.7	0.0	64.8
Noncompetitive	5.1	4.7	0.0	16.8

Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The table reports descriptive statistics of bidder category purchase shares in percent for all 576 U.S. Treasury security auctions between May 5, 2003, and December 28, 2005.

Table 2
Bidder Category Purchase Shares by Security Type

Category	Treasury Bills (n=466)	Nominal Treasury Notes and Bonds (n=94)	Treasury Inflation-Protected Securities (n=16)
Primary dealer	73.7	60.2	53.5
Direct bidder	2.5	1.9	0.5
Indirect bidder	17.9	36.0	44.7
Noncompetitive	5.9	2.0	1.3

Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The table reports average bidder category purchase shares in percent by security type for all 576 U.S. Treasury security auctions between May 5, 2003, and December 28, 2005.

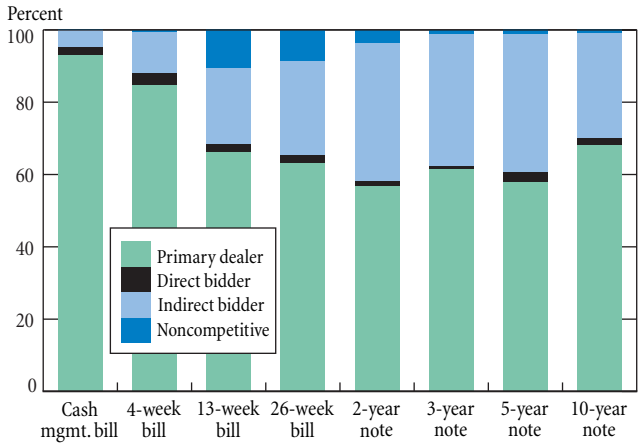
What the Investor Class Data Show

The investor class data show that dealers and brokers alone account for 75.4 percent of Treasury securities sold to the public, on average (Table 3). Foreign and international investors account for the next largest share, 12.5 percent, followed by investment funds (6.5 percent), depository institutions (0.5 percent), individuals (0.5 percent), and private pension and retirement funds and insurance companies (0.0 percent). "Other" investors, not captured in any of the classes cited, accounted for 4.6 percent of the Treasury securities sold to the public.[10] Again, there is significant variation in purchase shares across auctions, with depository institutions buying as

[8] Our analysis excludes amounts sold to the Federal Reserve. Amounts awarded to the Fed are made in addition to the public offering amount. Based on total issue sizes, the Fed bought an average of 19.1 percent of all 904 Treasury securities auctioned between July 30, 2001, and December 28, 2005. Fed purchases of bills, nominal coupon securities, and inflation-protected securities averaged 21.3 percent, 12.7 percent, and 1.8 percent, respectively.

[9] The number of primary dealers changes over time. A current list is posted on the New York Fed's website at <http://www.newyorkfed.org/markets/pridealers_current.html>. On April 22, 2004, Under Secretary for Domestic Finance Brian C. Roseboro stated that there were 825 investors making use of the auction system that allows direct bidding (<http://www.treas.gov/press/releases/js1454.htm>).

Chart 1
Bidder Category Purchase Shares by Issue Type



Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The chart plots average bidder category purchase shares by issue type for U.S. Treasury security auctions (excluding auctions of inflation-protected securities) between May 5, 2003, and December 28, 2005.

much as 31.6 percent of an issue, investment funds buying 46.1 percent of an issue, and foreign and international investors buying 38.6 percent of an issue.

Security type can explain much of the variation in investor class purchase shares across auctions—just as it explained the variation in bidder category purchase shares (Table 4). The pattern for dealers and brokers follows the pattern for primary dealers described earlier, as might be expected. Dealers and brokers' smaller share of nominal note and bond purchases relative to bill purchases is essentially offset by higher nominal note and bond shares for investment funds and foreign and international investors. In contrast, both dealers and brokers and foreign and international investors purchase smaller shares of inflation-protected securities than of nominal notes and bonds, with investment funds making up nearly all the difference.

Investor class shares across issues are also revealing (Chart 2). On average, foreign and international investors account for roughly equal shares (20 to 24 percent) of issues with maturities between twenty-six weeks and five years, smaller shares (about 15 percent) of shorter and longer term securities (that is, thirteen-week bills and ten-year notes), and only tiny shares (less than 1 percent) of cash management and four-week bills. In contrast, investment fund shares tend to increase with maturity, with an average of 3.2 percent for cash management bills and 13.7 percent for ten-year notes.

[10]For Treasury bills, the "other" category includes all noncompetitive bids except those of the Federal Reserve and foreign and international monetary authorities. This categorization biases downward the allotment share for the other classes to the extent that noncompetitive bids are made by those classes.

Table 3
Investor Class Allotment Shares for All Treasury Securities

Class	Mean	Standard Deviation	Minimum	Maximum
Depository institutions	0.5	2.6	0.0	31.6
Individuals	0.5	1.2	0.0	16.3
Dealers and brokers	75.4	14.6	34.5	100.0
Private pension and retirement funds and insurance companies	0.0	0.4	0.0	8.5
Investment funds	6.5	7.6	0.0	46.1
Foreign and international	12.5	9.7	0.0	38.6
Other	4.6	4.2	0.0	20.3

Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The table reports descriptive statistics of investor class allotment shares in percent for 903 U.S. Treasury security auctions between July 30, 2001, and December 28, 2005.

Table 4
Investor Class Allotment Shares by Security Type

Category	Treasury Bills (n=751)	Nominal Treasury Notes and Bonds (n=131)	Treasury Inflation-Protected Securities (n=21)
Depository institutions	0.4	1.2	0.9
Individuals	0.1	2.3	2.7
Dealers and brokers	78.0	63.6	56.3
Private pension and retirement funds and insurance companies	0.0	0.1	1.3
Investment funds	4.9	11.5	30.2
Foreign and international	11.1	21.1	8.2
Other	5.5	0.3	0.3

Source: Author's calculations, based on data from the U.S. Treasury Department.

Notes: The table reports average investor class allotment shares in percent by security type for 903 U.S. Treasury security auctions between July 30, 2001, and December 28, 2005. For Treasury bills, the "other" category includes all noncompetitive bids except those of the Federal Reserve and foreign and international monetary authorities.

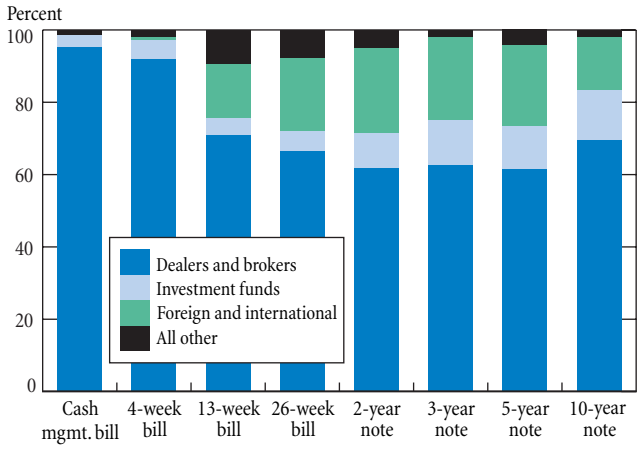
Bidding Methods Used by the Various Investor Classes

A comparison of the bidder category and investor class data sheds light on the bidding methods used by the various investor classes. An understanding of different investors' bidding methods, in turn, provides useful background for efforts to estimate foreign purchases from the indirect bid. Regressions of bidder category purchase shares on investor class allotment shares suggest the share of purchases made by bid type for each investor class. Further analysis of the auction data reveals instances where investor classes must have made at least some purchases by means of a particular bidding method, because the amount purchased by the class or classes exceeds the amount sold through other methods.[11]

Results of Regression Analysis

Regressions of direct bidder purchase shares on investor class allotment shares show that depository institutions and

Chart 2
Investor Class Allotment Shares by Issue Type



Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The chart plots average investor class allotment shares by issue type for U.S. Treasury security auctions (excluding auctions of inflation-protected securities) between July 30, 2001, and December 28, 2005.

dealers and brokers (other than primary dealers) bid directly (Table 5).[12] The coefficients reported in the table can be interpreted as shares, so that 93 percent of depository institution purchases and 48 percent of dealer and broker purchases are estimated to come from direct bids.[13] No other investor class coefficients are significantly different from zero.

Regressions of indirect bidder purchase shares on investor class allotment shares show that dealers and brokers, private pension and retirement funds and insurance companies (hereafter, pension funds), investment funds, and foreign and international investors bid indirectly. The coefficients suggest that half of dealer and broker purchases and nearly all purchases of pension funds, investment funds, and foreign and international investors come from indirect bids. (At most 100 percent of an investor class's purchases can come through a particular bidding method. The 1.86 coefficient for pension funds is insignificantly different from one.)

Lastly, regressions of noncompetitive purchase shares on investor class allotment shares show that individuals, foreign and international investors, and "other" investors bid noncompetitively. The coefficients suggest that about half of individual purchases, a small fraction of foreign and international purchases, and most purchases by "other" investors come from noncompetitive bids.

The results are generally similar when estimated separately for bills and coupon securities. For bills, however, the coefficient for pension funds is insignificant for bidding indirectly

Table 5
Results of Regressions of Bidder Category Purchase Shares on Investor Class Allotment Shares

	Bidder Category		
Investor Class	Direct Bidders	Indirect Bidders	Noncompetitive
Depository institutions	0.93**	0.08	-0.01
	(0.08)	(0.08)	(0.01)
Individuals	0.15	0.30	0.54**
	(0.21)	(0.25)	(0.13)
Dealers and brokers (excluding primary dealers)	0.48**	0.50**	0.01
	(0.06)	(0.06)	(0.02)
Private pension and retirement funds and insurance companies	-0.74	1.86**	-0.13
	(0.48)	(0.60)	(0.21)
Investment funds	0.03	0.99**	-0.02
	(0.02)	(0.02)	(0.01)
Foreign and international	-0.02	0.97**	0.04*
	(0.01)	(0.02)	(0.02)
Other	0.04	0.11	0.85**
	(0.04)	(0.06)	(0.06)
R^2 (adjusted)	0.54	0.96	0.92

Source: Author's calculations, based on data from the U.S. Treasury Department.

Notes: The table reports results of regressions of bidder category purchase shares on investor class allotment shares for 575 U.S. Treasury security auctions between May 5, 2003, and December 28, 2005. Coefficients are reported with heteroskedasticity-consistent (White) standard errors in parentheses. Foreign and international and noncompetitive variables exclude noncompetitive purchases of foreign and international monetary authorities made through the Federal Reserve Bank of New York.

*Significant at the 5 percent level. **Significant at the 1 percent level.

[11]Primary dealers are excluded from this analysis because they are known to make direct, competitive bids and because their purchases can be separated out from the rest of the data. Primary dealer purchases are reported in their own bidder category and they are a subset of dealer and broker purchases in the investor class data. Dealers and brokers other than primary dealers account for 3.9 percent of Treasury securities sold to the public, on average.

Noncompetitive purchases of foreign and international monetary authorities made through the Federal Reserve Bank of New York are also excluded from the analysis. The bidding method is known in these cases and the amounts can be separated out from the rest of the data since they are reported in the announcements of auction results. On average, noncompetitive purchases by foreign and international monetary authorities account for 9.8 percent of noncompetitive purchases (when both are not zero) and 6.5 percent of purchases by foreign and international investors (when both are not zero). Most U.S. Treasury securities owned by foreign investors are in fact held by foreign central banks, yet only 6.5 percent of foreigners' securities purchases are noncompetitive purchases through the Fed. Foreign central banks can also purchase Treasury securities by means of competitive bids placed through dealers and the Fed.

[12]The regression analysis has one less observation than the descriptive bidder category analysis because investor class allotment data are missing for the cash management bill auctioned December 7, 2005.

[13]Given that all possible bidding methods are being considered, one might expect the coefficients for any given investor class to sum to about one. The fact that they sum to one almost exactly without being explicitly constrained to do so is no coincidence, but a necessary statistical outcome of the manner in which the analysis is conducted.

and the coefficients for individuals and foreign and international investors are insignificant for bidding noncompetitively. For notes and bonds, the coefficient for dealers and brokers is insignificant for bidding directly (and close to one for bidding indirectly) and the coefficient for "other" investors is significant for indirect but not noncompetitive bids.[14]

Additional Results from Analyzing Auction Data

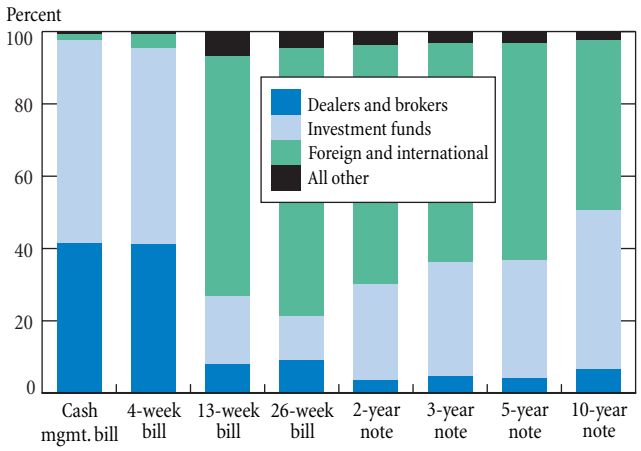
Consistent with the regression results, further analysis of the auction data reveals several instances when depository institutions must have bought securities directly and numerous instances when dealers and brokers (other than primary dealers) must have bought securities directly. The analysis does not reveal any instances when any other particular investor class must have bought securities directly, but it does reveal many instances when some other investor class or classes must have bought securities directly. In a few of these instances, the direct purchasers must have included investment funds and/or foreign and international investors.[15]

In contrast to the direct bidder results, there are multiple instances when each of the investor classes must have bought securities indirectly. This includes those investor classes for which the indirect bidder coefficient is insignificant. That is, depository institutions, individuals, and "other" investors bought securities indirectly in at least some auctions, even though the regression results fail to indicate significant indirect purchases by these classes. There are no instances when any particular investor class must have bought securities noncompetitively (excluding the reported noncompetitive purchases of foreign and international monetary authorities).

How Well Does the Indirect Bid Explain the Foreign and International Allotment?

Another way to analyze the data is to explore the extent to which differences in bidder category purchases across auctions can explain differences in investor class allotments. Such an approach would seem to offer a means of testing the common view that purchases by indirect bidders are good proxies for purchases by foreign central banks. However, the data do not allow a test of this particular relationship, because information is lacking on foreign central bank purchases of Treasury securities at auction (aside from the noncompetitive purchases made through the Fed). Nevertheless, the data do allow a test of how well indirect bids explain purchases by foreign and international investors as a whole.

Chart 3
Estimated Breakdown of Indirect Bid by Issue Type



Source: Author's calculations, based on data from the U.S. Treasury Department.

Note: The chart plots the average estimated breakdown of indirect bidder purchases by issue type for U.S. Treasury security auctions (excluding auctions of inflation-protected securities) between May 5, 2003, and December 28, 2005.

While all investor classes bid indirectly to a certain extent, the earlier results can be used to show that foreign and international investors account for the largest share of purchases by indirect bidders (averaging 46 percent), followed by investment funds (32 percent), dealers and brokers other than primary dealers (18 percent), and remaining investor classes combined (4 percent).[16] Average allocations vary substantially across issues, however, so that foreign and international investors account for only about 2 percent of cash management bills purchased indirectly, but 74 percent of twenty-six-week bills purchased indirectly (Chart 3).

Regressions of foreign and international allotment shares on indirect bidder purchase shares show that the indirect bid does indeed proxy for foreign and international purchases and in the expected way (Table 6). For the two-year note, for example, the average share allotted to foreign and international investors is estimated as 8 percent of the issue plus 50 percent of the indirect bid. The R^2—a measure of the variance explained by the statistical analysis—suggests that for the two-year note,

[14]Many of the differences in results between bills and coupon securities can be explained by the fact that noncompetitive purchases of bills are generally reported in the "other" category.

[15]In an extreme example, direct bidders bought $5.25 billion of the two-year note auctioned May 25, 2005. Dealers and brokers (other than primary dealers) and depository institutions together bought $144 million of the issue, investment funds bought $7.325 billion, foreign and international investors $5.585 billion, and "all other" investor classes (excluding primary dealers) $947 million.

[16]Fitted estimates of the share of securities purchased indirectly by each investor class are first calculated for each auction from the results of regressions of indirect bidder purchase shares on investor class allotment shares (run separately for bills and coupon securities). The fitted estimates are then divided by the sum of the fitted estimates across investor classes to create shares as a percent of indirect bidder purchases. Statistics based on these shares are equal-weighted (as are all statistics throughout the article), so that each auction receives the same weight in the analysis regardless of issue size.

Table 6

Results of Regressions of Foreign and International Allotment Shares on Indirect Bidder Category Shares

	Issue Type							
	Cash Mgmt. Bill	4-Week Bill	13-Week Bill	26-Week Bill	2-Year Note	3-Year Note	5-Year Note	10-Year Note
Constant	-0.00*	-0.00*	0.11**	0.14**	0.08*	0.01	0.09*	-0.03
	(0.00)	(0.00)	(0.01)	(0.01)	(0.03)	(0.04)	(0.04)	(0.03)
Indirect bid	0.05*	0.08**	0.17**	0.21**	0.50**	0.60**	0.39**	0.65**
	(0.02)	(0.02)	(0.05)	(0.04)	(0.09)	(0.12)	(0.11)	(0.11)
R^2 (adjusted)	0.24	0.24	0.16	0.18	0.48	0.60	0.29	0.75
Number of observations	48	139	139	139	31	11	31	21

Source: Author's calculations, based on data from the U.S. Treasury Department.

Notes: The table reports results of regressions of foreign and international allotment shares on indirect bidder category shares for U.S. Treasury security auctions (excluding auctions of inflation-protected securities) between May 5, 2003, and December 28, 2005. Coefficients are reported with heteroskedasticity-consistent (White) standard errors in parentheses. The foreign and international variable excludes noncompetitive bids of foreign and international monetary authorities.

*Significant at the 5 percent level. **Significant at the 1 percent level.

48 percent of the variation in foreign and international purchases is explained by variation in the indirect bid.

The regressions also reveal significant differences across issues in the extent to which indirect bidder purchases can explain foreign and international allotments. In particular, the R^2 measures are much higher for notes than for bills. Variation in the indirect bid across auctions thus explains 75 percent of the variation in ten-year-note purchases, but only 16 percent of the variation in thirteen-week-bill purchases.

The low R^2s for the thirteen- and twenty-six-week bills in particular are somewhat surprising as foreign and international purchases of these securities are quite large. Nonetheless, while the average level of foreign and international purchases of these bills is high, the variation in such purchases is low when compared with investment funds' purchases (the funds also buy nearly all of their securities indirectly).[17] As a result, variation in the indirect bid for bills is determined to a greater extent by investment fund purchases. Put another way, the indirect bid for bills is a better proxy for investment fund purchases than it is for purchases by foreign and international investors.

[17]For the thirteen-week bill, for example, the standard deviation of investment fund purchase shares is 4.7 percent, as compared with 2.3 percent for foreign and international purchase shares.

Conclusion

Steps to increase the transparency of U.S. Treasury auctions in recent years have provided useful information to market observers. Investor class allotment information—shown to be related to the performance of individual securities—is now available on a more timely basis and for more securities than in the past. In addition, bidder category data are now available, and their prompt release offers observers an early read on the allocation of securities. The indirect bid, in particular, seems to be a fairly good proxy for foreign purchases of Treasury notes, although not Treasury bills.

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