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Swiss treasury bond auctions: An update*

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Abstract

Ranaldo and Rossi (2016) presented data on the history of Swiss treasury bond auctions that covered the period from 1980, when the auction mechanism was implemented, to 2014. In this study, we extend the set of observations until 2023 and provide additional information for the entire sample. In addition to its length, our dataset stands out in terms of granularity. This information includes, among other information, the details of the auction process, the underlying rules and their changes over time, the demand schedules per bidder and their identity, awarded sums, yields and maturities at issuance.

JEL classification: D44; G12; G20

Keywords: Government bonds; treasury auctions; uniform-price auction

1. Introduction

The overall objective of the Swiss treasury is to cover the central government's financing needs at minimum funding costs while reducing interest and refinancing risks to an acceptable level.¹ One major change in debt management practices implemented by the Swiss authorities to this end has been the switch from syndicated fixed-price subscription offerings to an auction mechanism for allocating Confederation securities. As the treasury's fiscal agent, the Swiss National Bank (SNB) was entrusted with the task of conducting these auctions on behalf of the treasury and for the account of the Federal Government.

This study extends the work of Ranaldo and Rossi (2016), who presented auction results from 1980 to 2014 along several dimensions. First, the sample was updated with observations up to the end of December 2023. Second, illustrative charts of several major developments, particularly the bidding behaviour of different categories of auction participants and summary statistics for different maturity buckets, are provided. Third, the details of each auction have been significantly expanded and presented in two online annexes. Online Annex 1 summarises the information of each auction in a harmonised statistical form. It provides a comprehensive summary of each auction, comprising the tender number, auction announcements and closing dates, dates on communication of results and settlement, maturity dates, coupon rates, information on reopening issues, details on bid and issued volumes, own tranches, cut-off prices, yields, cover ratios, ISIN numbers, and ex ante announcements of auction sizes. Finally, Online Annex 2 presents the details of the bonds that have been issued with a call provision in the first 12 years since the introduction of the auction procedure.

1 Federal Treasury (2024). Available at: https://www.efv.admin.ch/efv/en/home/themen/mittelbeschaff_verm_schuldenverw/datenpubl.html. For an empirical analysis of the Confederation's debt management over the last 50 years cf. Guggenheim, Meichle and Nellen (2019).

2. Summary of results

From 1980 to 2023, the SNB successfully held 530 auctions. In the first decade, auctions were held irregularly, typically once every two to three months. Since 1992, auctions have been held more regularly once every two months. From 2000 to 2006, at least one auction took place each month, except in December, and since 2007, at least one auction has been held each month of the year.

Summarising the evidence in Table 1, the total amount raised during this 44-year period was CHF 189 billion (189,145,311,000). This sum does not include the tranches that the treasury reserved for its own purposes that add up to an additional borrowing of CHF 41.9 billion. The average coupon size was 2.7 percent (standard deviation 1.8). The competitive bid amount was CHF 568.9 million on average (standard deviation CHF 459.3 million), whereas the average volume submitted by noncompetitive bidders reached CHF 38.7 million (standard deviation CHF 61.3 million). This resulted in an average bid size at auction of CHF 607.5 million (standard deviation 461.8 million). The average allocation (borrowing) was CHF 356.9 million (standard deviation CHF 237.2 million). The cut-off price (“marginal price”, “market-clearing price”, or simply “stop”) was on average 105.8 (standard deviation 14.9) but exhibited a large variation, with the lowest level of 81.9 and the highest value of 217.5. Correspondingly, the distribution of yields was wide, while the average yield was 2.27 percent (standard deviation 1.92), the lowest yield recorded was -0.82 percent, and the highest yield attained at an auction was 7.11 percent. The average cover ratio was 1.8 (standard deviation 0.7) but also hides a large distribution that ranges from a minimum of one to a maximum of 8.6.

Table 1: SUMMARY STATISTICS

Variable	Min	Max	Mean	St. Dev.	Sum
Amount raised (CHF1K)	56,700	1,553,470	356,878	237,241	189,145,311
<i>of which competitive</i>	20,000	1,550,400	318,209	237,717	168,650,827
<i>of which noncompetitive</i>	0	678,056	38,669	61,346	20,494,484
Bid amount (CHF1K)	99,100	4,676,315	607,540	461,792	321,996,459
<i>of which competitive</i>	54,400	4,630,270	568,872	459,258	301,501,975
<i>of which noncompetitive</i>	0	678,056	38,669	61,346	20,494,484
Own tranche (CHF1K)	0	300,000	79,057	129,544	41,900,000
Coupon (%)	0	7	2.7	1.8	
Cut-off price	81.9	217.5	105.8	14.9	
Yield (%)	-0.82	7.11	2.27	1.92	
Cover ratio	1	8.6	1.8	0.7	

3. Uniform-price auctions

In July 1979, the SNB began selling short-term government bonds (T-bills) on behalf of the treasury in a public auction, replacing the syndicated fixed-price subscription offering in place hitherto.² From the beginning, the authorities adopted the sealed, multiple-bid,

² Details on Swiss T-bill auctions and their evolution over time are laid out in Rossi (2024).

uniform-price format.³ Prompted by the success in the distribution of T-bills, in January 1980, the same auction format was extended to the allocation of short-, medium- and long-term bonds. Since then, the treasury has fulfilled its annual debt issuance requirements (almost) exclusively through auctions.⁴ No subscription-based syndications or private placements have been used for that purpose. In the 45 auctions of the first decade, only one auction took place at a time. The July 1993 auction (tender no. 72, 73, 74) introduced the possibility of holding more than one auction of different bonds simultaneously, which we call “multistock auctions”; 307 auctions (out of 530) have been of this type.

A major institutional change replaced bidding by mail, phone or fax with an electronic procedure. Between February 2001 and April 2014, all Swiss treasury auctions were conducted on the electronic Eurex Repo platform, and since May 2014, they have been conducted on the SIX Repo trading platform, which is directly linked via Swiss Interbank Clearing (SIC) to the clearing and settlement facility of SIX SIS AG. Through linkages with the settlement systems, full automation of settlement procedures is provided, promoting the efficiency of back-office activities in the participating banks.

4. Bidding time

The time for bidding has been gradually shortened. We distinguish four phases.

- (i) From January 1980 to October 1991, the length of the bidding process varied. It began with an announcement by the treasury several days ahead of the auction. While the auction day was fixed for Thursdays, the announcement day fluctuated widely from six to 22 days (10.5 days on average). Commercial banks, savings banks and security brokers would collect bids from their clients. Submissions from the public had to be made by Thursday noon by phone and confirmed by fax to the SNB. Banks could submit their bids until five o'clock in the evening by phone, with confirmation by fax. The SNB would then inform the treasury, which ultimately determined the issue price and size. The results were published on Friday mornings on Reuters and in a press release.
- (ii) The second phase lasted from November 1991 to July 1994, during which the announcement period was shortened and fixed at three days. On the fourth Monday of the month of an auction week, the treasury announced that it would offer security the following Thursday.
- (iii) The third phase occurred from August 1994 to the end of 1997 and further shortened the announcement period from three to two days. The auction process started with an announcement on the Tuesday of an auction week (not Monday) that a security would be tendered the following Thursday, with the subscription close set for noon. The results were made public two hours after the auction was closed, not just the following day.

3 Ranaldo and Rossi (2016) discuss the Swiss authorities' rationale behind their preference for the uniform-price auction format rather than the discriminatory-price auction, which was (and still is) the dominant auction type for selling treasury securities in the OECD area.

4 Only occasionally has the treasury resorted to private placements (cf. Rossi, 2024).

- (iv) The fourth phase occurred in January 1998, when the time lag between the announcement and the auction deadline was shortened to one day. The auction close was set for Wednesday, a day earlier than previously customary. As a rule, an auction was announced every fourth Tuesday of the month. The next day, the bidding window opened at 9.30 in the morning and closed at noon. As of 13 July 2011, the auction window was shortened by one hour. Since then, the auctions begin at 9.30 am and end at 11.00 am, one hour earlier than before.⁵

5. Preauction information

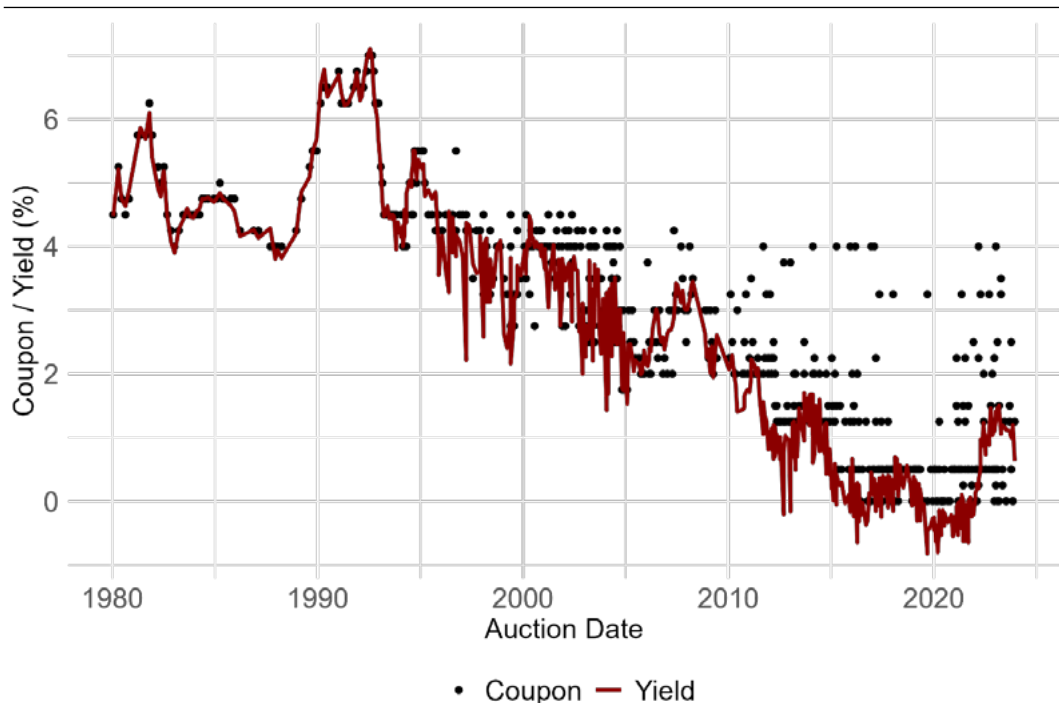
The information set provided ahead of an auction has also undergone some changes over time.

5.1 Basic information

Some working days before the auction takes place, the treasury and the SNB release a joint press statement that has always included the notification of market participants about the auction, the bond's coupon and its maturity.

Chart 1 presents the coupons as well as the yields established at the auctions. It can be inferred from the chart that the difference between bond coupons and yields at issuance has widened over time. Moreover, nominal yields trended downwards from approximately 7 percent in the first half of the 1990s to negative values in the 2010s. In 2021, yields rose for the first time in decades.

Chart 1: COUPON SIZE AND YIELDS



Note: The black dots represent the value of the coupon of each auction. The red line shows the yields to maturity resulting from the auctions.

⁵ Further details are provided in Ranaldo and Rossi (2016).

Additional information provided before the auction concerned the treasury's ability to call the bonds before their maturity, indicating the possible redemption dates and associated prices. This practice was pursued, although irregularly, from April 1980 to October 1992.

5.2 Borrowing target

For many years, the communiqué also exhibited a target borrowing size. However, the latter information became increasingly imprecise over time. Announcing the borrowing size increases transparency but reduces treasury flexibility in coping with unexpected events.⁶

- From January 1980 to October 1991, the treasury would indicate an approximate size to be issued. The average size has been CHF 240.6 million, with a minimum of CHF 150 million and a maximum of CHF 300 million.
- This practice was replaced by the announcement of a prospective maximum on offer in November 1991, coupled with the provision that it would abstain from full allotment if insufficient bids were received at acceptable prices. This move was intended to increase treasury flexibility in setting the final borrowing size. The first announcement provided a maximum of CHF 500 million and was gradually stepped up to CHF 1.3 billion (own tranches included).⁷
- The practice of providing any kind of information on the borrowing size was *discontinued* in January 2000. Since then, only the bond coupons and maturities have been made public prior to the auction.

5.3 Annual issuance calendar

To increase transparency and predictability, the treasury introduced an annual issue calendar in Spring 1992 that is announced at year-end for the following year. It specifies the auction dates and the gross and net borrowing amount the treasury intends to raise. The calendar does not predetermine the size of individual issues or the coupon and maturity of the bonds. This information is given only shortly before an auction takes place. The calendar allows the treasury to deviate from the announcements if the Confederation's funding requirements diverge from the plan laid out in the calendar. On a few occasions, the treasury cancelled an auction that had been envisaged by the calendar. In contrast, no auction took place that had not been foreseen by the calendar, except for the December 1992 auction (tender no. 65). The calendar for 2010 introduced

6 Cf. Dentler and Rossi (2024) for a theoretical model that analyses the welfare implications from credible announcements of borrowing size.

7 For the August 1993 auction, the treasury announced a prospective maximum offer of CHF 1.4 billion. However, this was the total amount to be allotted to tender no. 75 and tender no. 76.

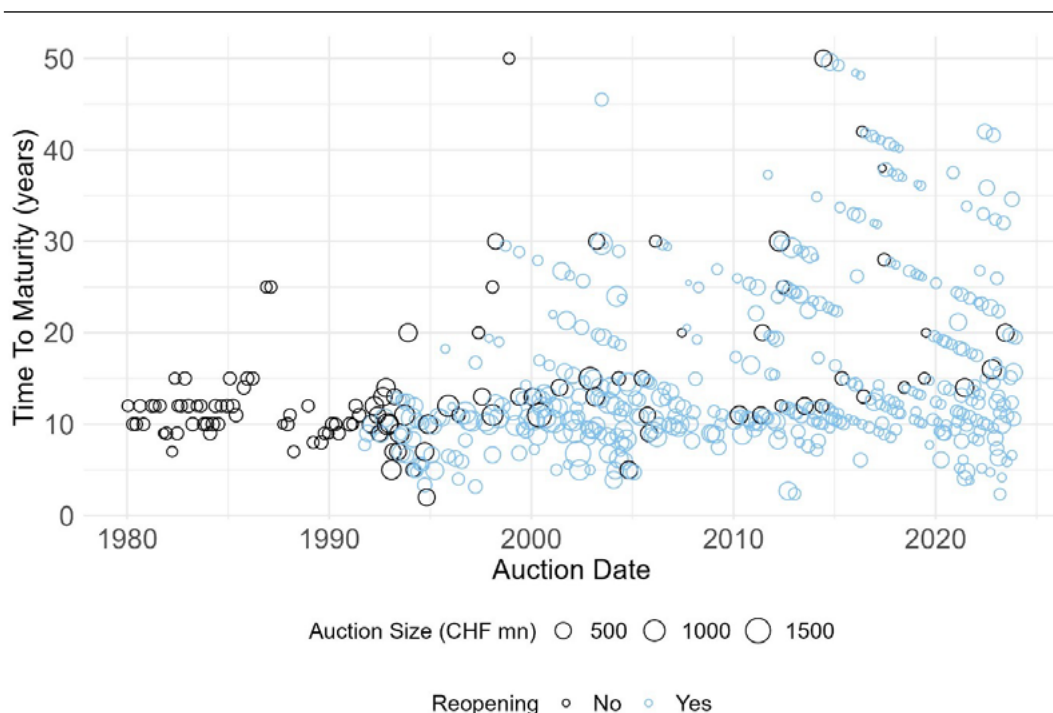
an innovation in terms of optional dates for the auctions. Unlike other countries, no additional calendar is made available during the year.⁸

6. Reopenings and maturities

In October 1991, the treasury began reopening outstanding bonds that are actively traded in the secondary market. The purpose was to increase the depth of the market and foster its liquidity. Since then, only 60 out of a total of 477 auctions have targeted new bonds until the end of December 2023.

As shown in Chart 2, the practice of reopening outstanding issues has led to an increase in auction size. Moreover, the maturity of the bonds issued has increased considerably, especially since the turn of the century.

Chart 2: AUCTION SIZE AND TIMES TO MATURITY



Note: The value on the y-axis indicates the time to maturity of the auctioned bonds. The size of the circles is proportional to the total amount allotted to participants (auction size). The light blue circles refer to reopenings.

Maturities can be assigned to three tenors: short, medium and long term. Short-term maturities encompass maturities between more than one year and less than ten years; medium-term maturities range from 10 to 20 years; and long maturities include those extending beyond 20 years.

⁸ For example, in Germany, the Netherlands, and Italy a quarterly calendar is issued next to the annual calendar in which more details about the bonds to be issued at each auction in the upcoming quarter are laid out. Cf. https://economic-financial-committee.europa.eu/efc-sub-committee-eu-sovereign-debt-markets/issuance-calendar/national-issuance-information_en

As can be inferred from Table 2, most issuances carried a medium-term maturity. The average number of participants was similar for auctions of short maturities and medium-term maturities (approximately 20) and lower for long tenors (approximately ten). Similarly, the bid amount (approximately CHF 650 million) and the allotted size (approximately CHF 380 million) are similar in the short- and medium-term maturities and lower in the long-maturity segment. In contrast, long-maturity bonds feature a higher cut-off price. For all three maturity tenors, the yield emerging from the auction has been on average higher than the yield observed in the secondary market, which is tantamount to systematic under pricing at auction.

Table 2: SUMMARY STATISTICS BY MATURITY BUCKET

Variable	N	Min	Max	Mean
<i>Short maturity</i>				
Residual maturity	150	2	10	7.7
Participants	150	5	67	20
Bid size (CHF million)	150	141	2,213	667
Allotted size (CHF million)	150	91	1,553	395
Cut-off price	150	92	133	105
Spread (vs. market, bps)	112	-10	9.2	2
<i>Medium maturity</i>				
Residual maturity	273	10	20	13
Participants	273	6	73	17
Bid size (CHF million)	273	99	4,676	645
Allotted size (CHF million)	273	64	1,332	374
Cut-off price	273	82	139	103
Spread (vs. market, bps)	196	-13	19	2.1
<i>Long maturity</i>				
Residual maturity	107	21	50	31
Participants	107	5	27	9.8
Bid size (CHF million)	107	99	1,942	428
Allotted size (CHF million)	107	57	1,021	260
Cut-off price	107	82	218	114
Spread (vs. market, bps)	90	-3.5	13	2.7

Note: The first column “N” indicates the number of auctions underlying the values tabulated in Columns 2-4. “Residual maturity” is the number of years between the settlement date and the maturity date. “Participants” identifies the number of bidders. “Bid size” aggregates the total amount of competitive and noncompetitive bids, and “Allotted size” aggregates the awarded volumes. The “cut-off price” is the price set by the treasury at auction. “Spread (vs. market, bps)” is the difference (in basis points) between the yield to maturity of reopenings established at the auction and the closing price of the same ISIN in the secondary market on the auction day.

7. Communication of results

Soon after the auction, the treasury announces summary statistics, including coupon, maturity, total amount borrowed, cut-off price, annual yield, sum of noncompetitive bids (except in the first four auctions), the possibility to be reopened (fungibility), and, until September 1993, whether bids at the cut-off price had been awarded fully or on a pro-rata basis.

Additional information has been provided over time. This includes the settlement date (since December 1992), the exact allotment rate in the final price category, and, beginning in October 1993, the total tender volume.

The electronic auction system significantly shortened the turnaround time (the time auction results are made public) to approximately 15 minutes. The issue results are disclosed on the SIX Repo trading platform immediately after the allotment and later via Reuters and Bloomberg. They are also posted on the websites of the Federal Finance Administration (FFA) and SNB a little later.

8. Tap sales

Since August 1993, the treasury has often complemented auctions with tap sales whose size has been communicated in advance. In tap sales, the treasury holds back a tranche of the new bond to be sold later in the secondary market at the original face value, maturity, and coupon rate but at the current market price. The treasury places the entire tranche or only a part of it on the market at a subsequent date as it sees fit. From August 1993 to October 2001, the volume of own tranches alternated between CHF 200 million and CHF 300 million. Since November 2001, it has been fixed at CHF 300 million. In total, the treasury has reserved CHF 41.9 billion for issuance at a later stage.

9. Bidders

9.1 Two classes

Bidders in sovereign debt auctions typically fall into one of three groups: primary dealers, direct bidders, and dealer clients (indirect bidders). In many countries, the most important group is the primary dealers. In a primary dealer system, participation is limited to a selected group of designated banks that have to satisfy minimum participation requirements in the primary market and minimum quoting obligations in the secondary market. For their services, primary dealers are entitled to different forms of compensation.⁹

One particular feature of Swiss treasury auctions that distinguishes itself from auctions of other OECD countries is their openness. There has never been any kind

⁹ For instance, in the US, a limited number of institutional investors, mostly large investment banks, are authorised by the New York Federal Reserve Bank to participate in treasury auctions as primary dealers. They are obligated to participate in every auction and to bid for a minimum quantity of the total offering amount. This minimum quantity is determined as the total offering

of arrangement akin to a primary dealer system, neither for bills nor for bonds.¹⁰ Instead, the treasury relies informally on banks and institutional and private investors without granting them the rights or obligations of market makers, which entail formal compensation.

While the dataset we compiled is as comprehensive as possible and covers many years, the identities of end investors cannot be determined over the entire sample period. With the switch to electronic bidding, direct access to auctions by nonbank financial institutions and private persons was curtailed.¹¹ Since then, bidders in treasury bond auctions can be assigned to two classes: direct bidders (mainly banks) have direct access to the auction, whereas indirect bidders have to recur to the intermediation of a direct bidder to place their bids in an auction. As a result, it is not possible to determine whether the bids have been submitted for a bidder's own purpose (direct bidder) or on behalf of their clients (the indirect bidders). Even before electronic bidding was introduced, some bidders may have participated in auctions only indirectly via a bank.

On average, 16.4 different (direct) bidders (standard deviation 11.3) bid in an auction during the sample period. The lack of a formal primary dealer system naturally entails considerable variation in the number of auction participants. At minimum, only five different participants submitted their bids, whereas the maximum number of different participants in an auction was 73. While attendance at auctions continuously rose from approximately 20 to more than 50 different bidders at the beginning of the 1990s, participation subsequently decreased and stabilised in approximately 2015. Since 2016, 9.4 different bidders have participated in auctions on average; however, this reduction in the number of attendees does not necessarily mean a corresponding drop in demand for treasury bonds. As explained above, bidders may not only tender for their own accounts but also, or even mainly, for their clients.

In addition to dwindling (direct) participation, the average number of bids per year and auctions has steadily decreased, from more than 200 in 1991 to less than 35 in 2014-2023. Chart 3 summarises the evidence.

9.2 Seven categories

As explained above, bidders in Swiss treasury auctions are composed of direct bidders and indirect bidders. Overall, bidders can be grouped into seven different categories:

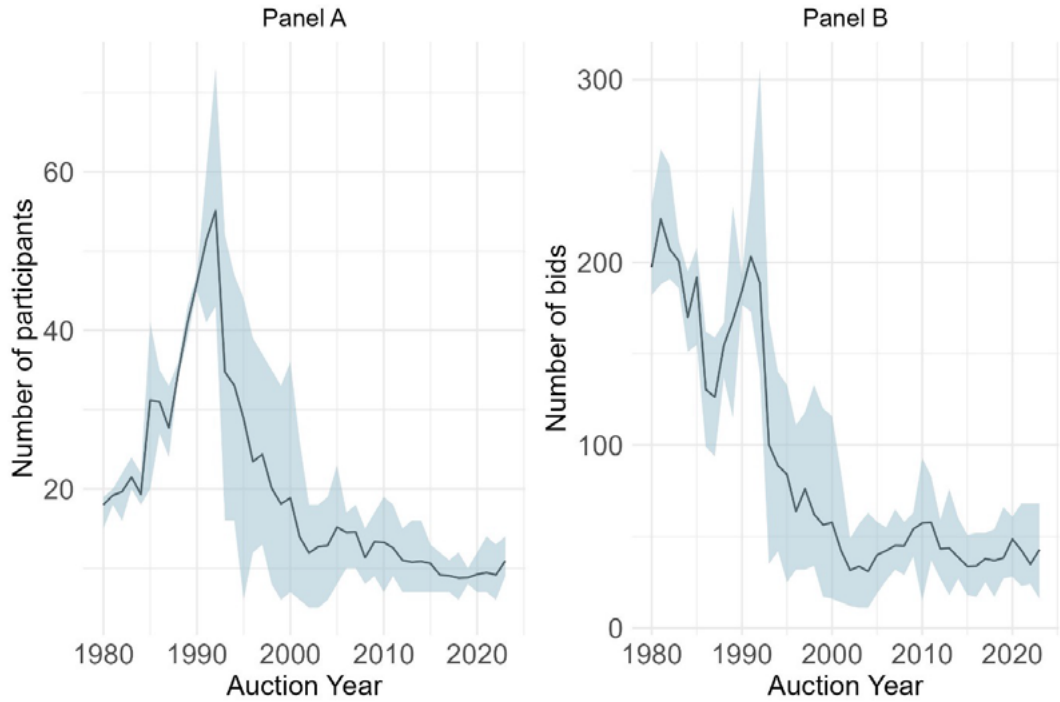
- The first five categories are made up of banks that we constructed following the classification adopted by the SNB in its annual report *The Banks in Switzerland* (discontinued in June 2020). The single categories are 1. cantonal banks; 2. large banks; 3. foreign and foreign-controlled banks; 4. other banks, which include private banks, trade banks, exchange banks, and small credit banks; and 5. regional banks, including savings banks and Raiffeisen banks.

amount divided by the number of primary dealers. Primary dealer arrangements are also typical in euro area countries.

10 Bernhard and Rossi (2000) discuss the reasons against a formal primary dealer system in Switzerland.

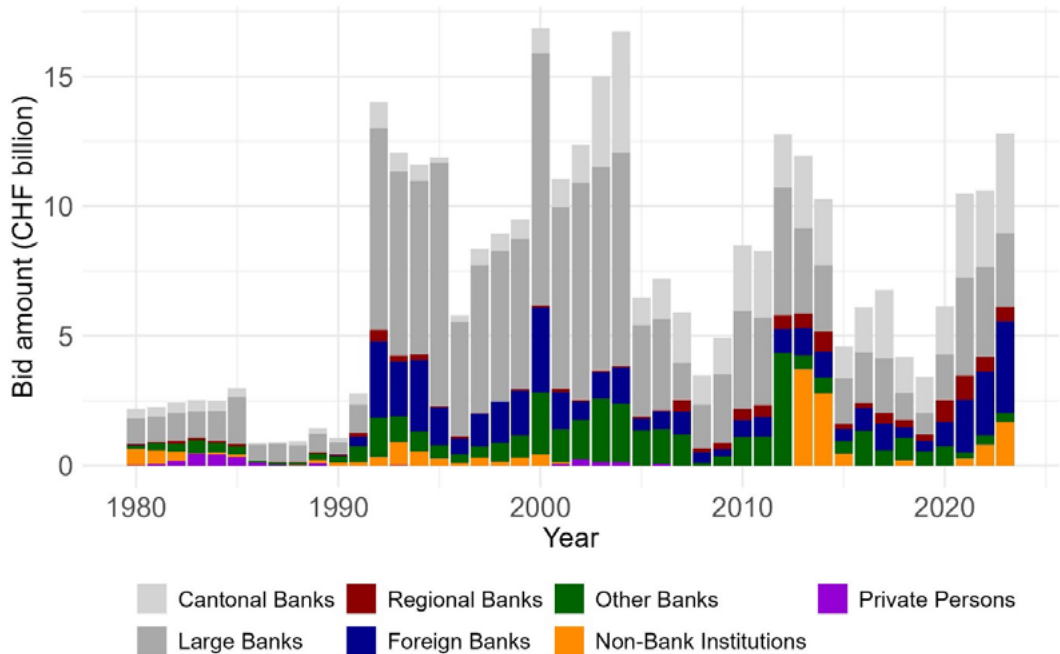
11 For T-bills, the requirement of natural persons to bid via a Swiss-based bank had already been institutionalised in January 1993 (cf. Rossi, 2024).

Chart 3: NUMBER OF BIDDERS (PANEL A) & NUMBER OF BIDS (PANEL B)



Note: Panel A and Panel B show the average number of auction participants and bids, respectively, per year. The shaded area is delimited by the minimum and maximum values of a year.

Chart 4: BID AMOUNT BY CATEGORY



Note: The bars show the total bid amount per year. The colours identify the bid volumes of each bidding category.

- The sixth category consists of nonbank financial institutions, which include insurance companies, pension funds, and old age and survivor insurance.
- The seventh category is composed of private bidders.

As illustrated in Chart 4, from 1992 to 2004, the amount of bids strongly increased. From 2005 to 2008, bid volumes fell below those of the previous years; a similar drop occurred between 2015 and 2020. In the last three years, the bid volume steadily increased, reaching the level last observed in the first half of the 2010s.

Chart 4 further shows that the large banks represent the most active bidders over the entire sample period, followed by the cantonal banks and the foreign banks. Nonbank financial institutions became active in 2013 and 2014 after a long absence from the primary market and resumed their participation again in the last two years.

9.3 Bidding and participation

While having a number of features in common with other auctions, treasury auctions exhibit some characteristics that set them apart from other markets. One such feature is that bids may be submitted as competitive or noncompetitive. Competitive bidders submit bids specifying the amount of the security they are willing to buy at each price, which are sets of multiple price–quantity pairs.

In contrast, noncompetitive bidders can submit a quantity bid, up to a maximum amount, without any price indication. Noncompetitive bidding has the advantage of guaranteeing that the bids are filled with certainty. As a downside, noncompetitive bidders face uncertainty about the price at which their orders are filled.

The rules applied to noncompetitive bidding have undergone several changes. In the beginning, the maximum bid volume a noncompetitive bidder was allowed to tender was CHF 20,000. In March 1986, this limit was raised to CHF 100,000. Beginning with the first auction under the annual auction calendar in May 1992, the issue prospectus stated that bids without a price will be invoiced at the cut-off price. This practice was pursued for the following six auctions from May to November. The December 1992 auction reinstalled the limit of CHF 100,000 per noncompetitive bidder. Finally, in Spring 2016, this limit was removed for good.

Apart from these constraints, bidders in Swiss Treasury auctions enjoy a high degree of flexibility. Any bidder can bid only in the competitive or noncompetitive tender, bid simultaneously in both, or abstain from bidding at all. There is neither an upper limit on the number of bids that bidders are allowed to submit in the competitive tender¹² nor any award limit.¹³

The total number of competitive bids submitted from 1980 to 2023 was 29,430, whereas the total number of noncompetitive bids was 4,650. The average number of

12 The electronic bid system for treasury bonds applied for the first time in the March 2001 auction set an upper limit for a single offer of CHF 100 million. However, this limit has been established purely for settlement reasons.

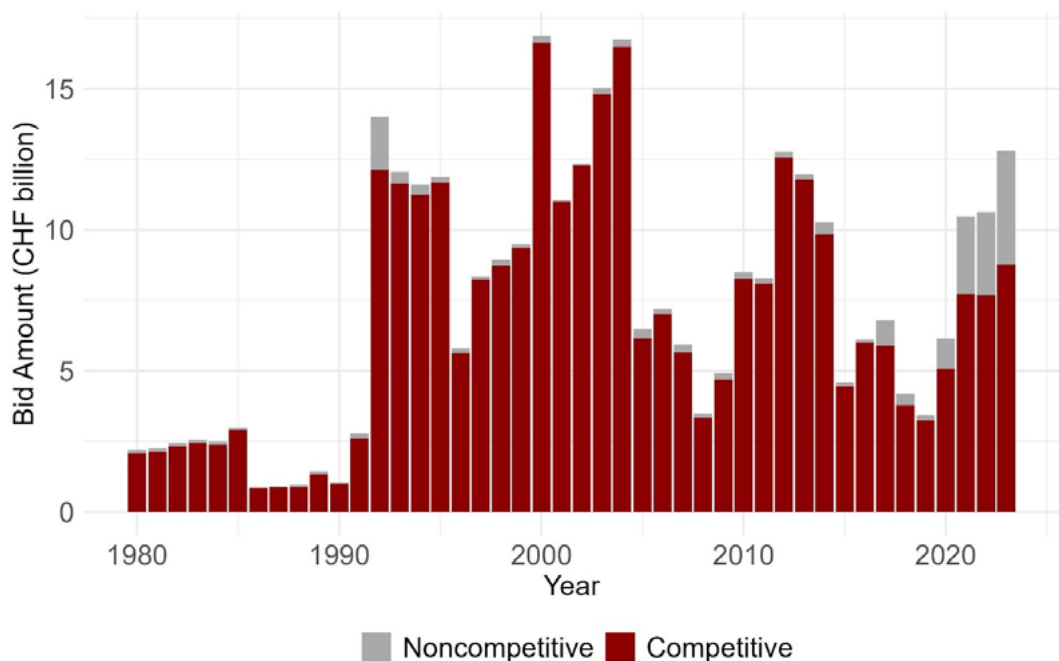
13 This is in contrast to US practice, for example, where each competitive bidder award cannot exceed 35 percent of the offering amount.

competitive bids per auction was 55.5 (standard deviation 45.4), and the quantity of noncompetitive bids was 8.9 (standard deviation 9.9).

In terms of bid volume, phases with high bidding are followed by periods with lower bidding. For example, from 2008 to 2012, bid volumes steadily increased but trended downwards until 2019. Since 2020, the amount bid in auctions has again tended to move upwards. This has coincided with a steady increase in the share of noncompetitive bid volume in total. Competitive bidders have posted an aggregate demand of CHF 302 billion (301,501,975,000), whereas the bid volume of noncompetitive bidders sums to CHF 20 billion (20,494,484,000). This gives a total bidding amount of CHF 322 billion (321,996,459,000). The competitive bid volume covers 93.6 percent of aggregate demand, and 6.4 percent of total demand is attributable to noncompetitive bidders.

Allotment to competitive bidders amounts to CHF 169 billion (168,650,827,000), which corresponds to 89.2 percent of the total; the remaining 10.8 percent are allocated to noncompetitive bidders (20,494,484,000).

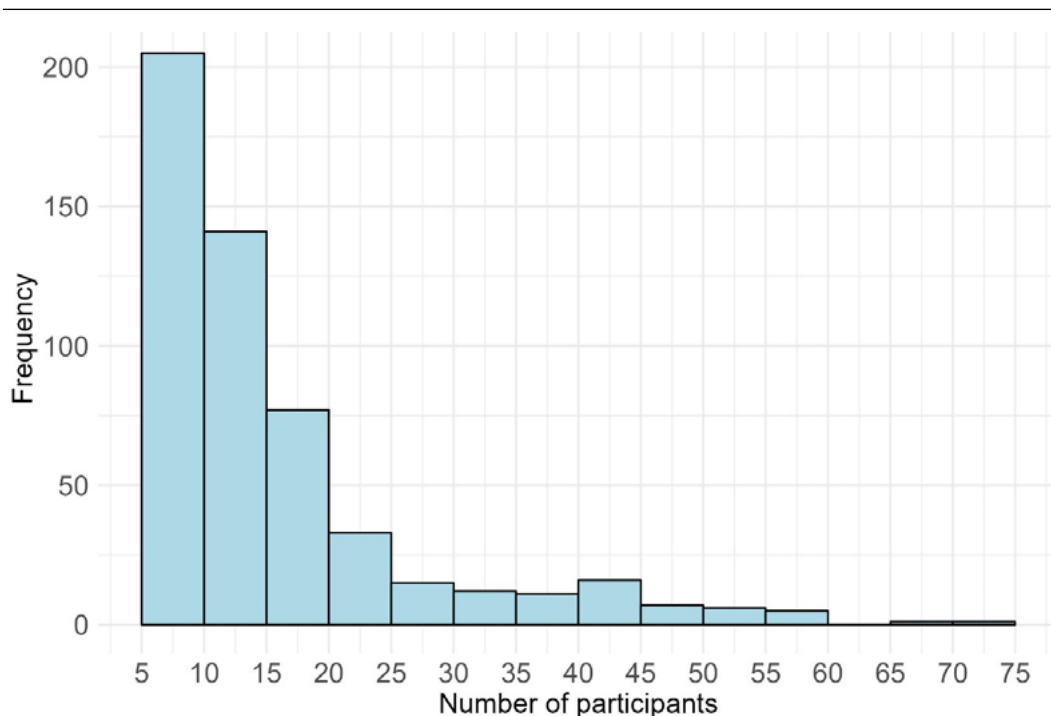
Chart 5: COMPETITIVE AND NONCOMPETITIVE BID VOLUME PER YEAR



Note: The bars show the total amount bid each year. The colours distinguish between competitive bids that are composed of price–quantity pairs and noncompetitive bids that come with limited bid volume (until 2016) but no price indication.

Chart 6 shows that participation has been strong. A total of 205 auctions included up to 10 participants, 218 auctions included up to 20 bidders, 48 auctions included up to 30 competitors, 23 auctions included up to 40 bidders, 23 auctions included up to 50, 11 auctions included up to 60, one auction included up to 70, and another included up to 80 participants. In only three auctions was the number of bidders lower than or equal to five. We interpret this evidence as the establishment of an “implicit primary dealer” system by the market.

Chart 6: FREQUENCY OF PARTICIPANTS



Note: The bars show the frequency of auctions with a number of participants falling within a certain range.

10. Cut-off price and cover ratio

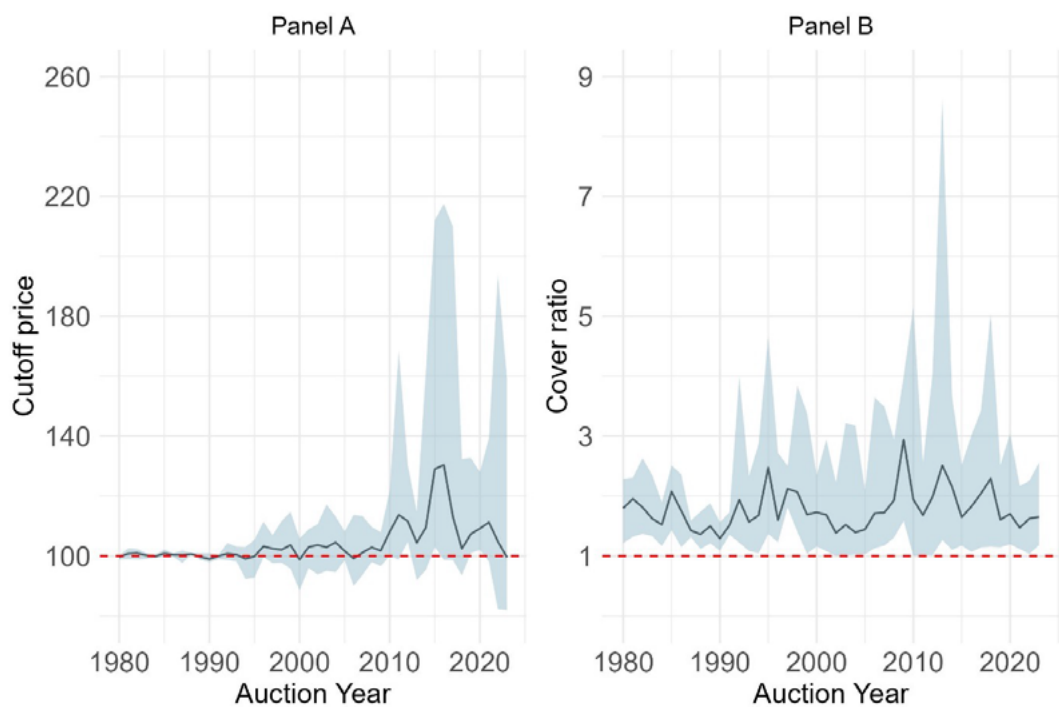
The treasury's freedom to determine the quantity to issue after bidding confers it the right to set the cut-off price. In establishing the latter, the allocation rule gives precedence to noncompetitive bids. Once these have been allocated, the remaining quantity that the treasury has decided to sell is awarded to winning competitive bidders in order of descending bid prices until the amount to be sold is exhausted. The lowest accepted competitive bid establishes the cut-off price. All auction awards are made at this price; the bids above are filled in full, and those below are rejected. The fact that the amount available to competitive bidders is established after subtraction of noncompetitive bids from total offerings represents a price and allocation risk to competitive participants.

Prior to the introduction of the electronic bidding system, marginal demand at the cut-off price was rationed (with few exceptions) according to the ratio of the quantity of securities that remained to be sold at the cut-off price to the quantity bid at this price. The lowest allocation at the cut-off price was 26.9 percent (which is a cut of 73.1 percent of the bids posted at the lowest accepted price). During phone bidding (until February 2001), 87.6 percent of the bids posted at the lowest accepted price were accepted on average. While allocation on a pro-rata basis can be made at any time, all bids at the cut-off price have been fully allocated since the switch to electronic bidding, with the exception of the auction in June 2015, when only 47.3 percent of the bids at the cut-off price were considered.

Panel A in Chart 7 shows the development of the cut-off price. As can be observed, it is flat and close to par in the first and a half decades. Subsequently, it exhibits large variation. After the global financial crisis, when coupons were much higher than auction yields, cut-off prices often hovered above par.

Panel B shows the evolution of the cover ratio (also called the “bid-to-cover ratio” or simply the “cover”), which is a key measure of demand and the most common measure of the outcome of an auction. It is calculated as the total amount bid during an auction divided by the total amount of debt actually allotted. As can be inferred from Panel B, all auctions were successful despite the absence of a primary dealer system. On average, the cover ratio was 1.8 but exhibited some variation that ranged between 1.0 and a staggering oversubscription of 8.6.¹⁴

Chart 7: CUT-OFF PRICE AND COVER RATIO



Note: The black line represents the average value in a year, and the grey surfaces capture the maximum and minimum values of the cut-off price (Panel A) and the cover ratio (Panel B). The dotted red lines mark the value of 100 for the cut-off price and 1 for the cover ratio.

14 A cover ratio of 1 is not an indication of lack of demand because the treasury pursues a (variable) yield objective when deciding on the cut-off price rather than a specific quantitative target for the cover ratio.

11. Conclusions

The uniform-price auction procedure for Swiss treasury bonds conducted by the SNB on behalf of the treasury has proven to be robust and well-functioning over the past four decades, enabling the treasury to cover the Confederation's funding needs on the Swiss capital market at any time in a smooth and transparent way without an official primary dealer system. Issuance has been distributed along the entire yield curve for up to 50 years. While the basic auction format has not changed, some details have been adapted over time to account for changes in the Confederation's funding needs and technological, economic and financial market developments.

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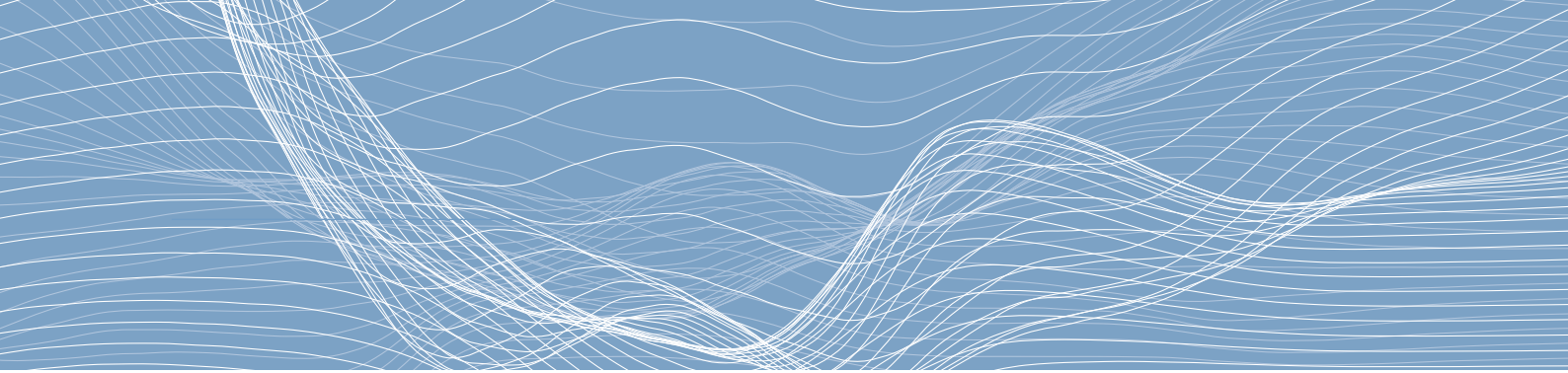
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