Cross-Country Comparison of Models for Issuance of Government Securities

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SCOPE OF THE PAPER

The aim of this paper is to provide a succinct summary of government debt issuance models in the following countries: Australia, France, Germany, Ireland, Italy, Japan, New Zealand, Spain, Sweden, United Kingdom, and United States. Each country summary is organized in 4 sections:

- The Basics;
- Obligations and Advantages;
- Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities;
- Other Issues.

The section on **The Basics**, gives the following facts:

- Who is the debt manager, and what are the goals of debt management.
- Whether a primary dealer model or open participation model is being used. A primary dealer model is ***defined*** as the practice of the issuer of government securities to simultaneously impose obligations on, and award advantages to, a subset of primary market participants. An open participation model is ***defined*** as the practice of the issuer of government securities, whereby ***either*** advantages are given or obligations imposed, or neither advantages given and obligations imposed, on a subset of the primary market participants.
- The number, eligibility criteria, and foreign-domestic split of primary market participants.
- The instruments issued in the primary market, and their issuance method.

The section on **Obligations and Advantages** lists obligations and advantages of primary market participants. The section on **Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities** describes one aspect of the demand for government securities. Specifically, in the countries studied, access to intraday and interday liquidity are collateralized operations. Government securities are in many countries a significant proportion of, this collateral. For the purpose of this paper, interday credit will refer to credit provided through operations that have a maturity longer than overnight. Intraday liquidity will refer to credit that ***cannot*** be used interday. Thus, intraday liquidity comprises of:

- daylight credit: credit that can be accessed during the day, but is ***not*** available at the end of the day;
- end-of-the-day credit: credit that can ***only*** be accessed at the end of the day, and on an overnight basis;

- daily credit: credit available through the day on an overnight basis.

Finally, the section on **Other Issues** highlights features of government debt issuance that are idiosyncratic to a country.

HIGHLIGHTS

- The Central Bank is not the debt manager in any of the countries covered by the study. Some countries have an independent debt office responsible for primary issuance. In other countries, usually the Treasury department of the Ministry of Finance is responsible for primary issuance.
- Minimizing cost of issuance is an objective of debt issuance common to all countries. In addition to cost, Germany, Italy, Ireland, Spain, and UK emphasize secondary market liquidity, and Germany and USA emphasize participation as secondary objectives.
- The primary dealer model exists in France, Ireland, Italy, Spain, Sweden, and UK. The open participation model exists in Australia, Germany, Japan, New Zealand, and USA. In Japan and USA, the primary dealer model exists for open market operations conducted for monetary policy implementation, but not for issuance of government securities.
- The primary dealer model and the open participation model for primary issuance are not specific to small or large countries.
- For countries with primary dealer model, the number of primary dealers varies from a high of 21 for France and Spain for to a low of 7 for Ireland and Sweden. Where a primary dealer model exists for index-linked bonds, the number of primary dealers is usually less than those for nominal government bonds. For the open participation model, the number of participants varies from a low of 18 in New Zealand, to 146 in Australia, to a large, but unknown number in the USA.
- ***Explicit*** residency requirements for primary market participants exist only in France, and were in existence in Spain until 1999. Australia does not have explicit residency requirements; but the terminals through which bidding is done are only present locally.
- In terms of obligations, countries with primary dealer model fall into two categories. In France, Italy, Spain and UK, the focus is on participation obligations in the electronic secondary market. Ireland and Sweden, impose participation obligations in both the primary and secondary markets, including the electronic secondary market. Germany operates under the open participation model, but imposes primary market participation obligations on all auction participants.
- In terms of advantages, France, Italy, Spain, and UK give primary dealers *preferred* access to primary issuance, while Ireland and Sweden give exclusive access. Sweden gives monetary commissions for participation in the primary market and the electronic secondary markets. The debt office in Ireland acts as the bidder of the last resort for primary dealers in the secondary market.

- In Sweden and USA, an advantage given to primary dealers, that is *unrelated* to debt issuance, is that primary dealers are the exclusive counterparty in monetary policy implementation operations. In UK and the Eurosystem countries this could not be confirmed as there is a split in the fiscal agent and monetary policy agent role. However in both cases primary dealer style obligations are imposed on monetary policy implementation counterparties.

- Given a participation model, primary issuance is done primarily through discriminatory price auctions, with uniform price auctions being used for index-linked bonds in several but not all countries. USA, Spain, and Japan are exceptions. While USA conducts primary issuance through uniform price auctions, Spain uses "Spanish" auctions that are a combination of uniform and discriminatory price auctions. Japan uses syndication in addition to auctions, and a combination of auction and syndication for the 10-year coupon bond.

- In addition to auctions, several countries use other methods to target *specific* investor categories. For example, Germany uses tap issuance for "buy-and-hold" investors; Italy and Spain use syndication for overseas investors, and "special-interest" investor groups.

- Countries in this study require counterparties to post collateral to access interday and intraday liquidity. Government securities are a significant proportion of the pool of collateral that can be used to access intraday and interday liquidity in all countries except Sweden, and New Zealand for intraday credit. For countries where we could obtain the amount of government securities used for collateral purposes as a percentage of the outstanding stock of government securities, we found the percentage to be significant. For all countries in this study, the use of a real-time, gross settlement system, in the payments and settlement infrastructure, has led to an increased demand for intraday liquidity, and consequently for government securities for collateral purposes.

- Three distinct features emerge *vis-a-vis* the ownership structure of government securities. First, in several countries (Sweden, UK), pension funds and insurance companies hold a significant proportion of government securities. Second, nonresidents hold a large proportion of the securities in most countries in the Eurosystem; this follows from tax incentives for non-residents. Third, in the USA, the Federal Reserve is the largest holder of US Treasury securities, with its share increasing from 30% in 1999 to 53% in 2000.

1 Australia

1.1 The Basics

Australia does not operate under a Primary Dealership system. The Australian Office of Financial Management (AOFM henceforth), established in July 1999, is the debt manager for the Commonwealth Government of Australia. It's key objective is to "raise, manage and retire Commonwealth debt at the lowest possible long-term cost, consistent with an acceptable degree of risk exposure". The Reserve Bank of Australia (RBA henceforth) acts as the AOFM's agent for the issuance and redemption of Commonwealth domestic securities and is also the registrar and paying agent.

Government debt is issued in the form of Treasury Notes (similar to treasury bills), Treasury Bonds, and Treasury Indexed Bonds (TIBS). Treasury Bonds are currently the main debt instruments issued, with Treasury bonds comprising over 80% of the total Commonwealth debt outstanding. The RBA issues all Commonwealth securities on AOFM's behalf via multiple price auctions, by means of an electronic process, the Reserve Bank Information and Transfer System (RITS).[1]

The following are important aspects about *participation* in auctions of Commonwealth securities:

- participation is open *only* to RITS members, but participation in each auction is *not* mandatory;
- as of December 1998, there were 146 members RITS members, including the RBA, all 52 authorized banks, two Special Service Providers,[2] and 91 major non-bank financial institutions trading Commonwealth Government securities;
- *winners* at auctions are typically banks and active bond-market participants, usually *less than 20* institutions;
- participation in the auction is not limited to a certain amount or percentage of the auction per participant, implying that in theory, auction allocation could be concentrated in a single bidder;[3]

[1]The RITS is an electronic system owned and operated by the RBA in which interbank payments settle, and lies at the heart of Australia's RTGS electronic payments system for settling large-value transactions. Until February 2002, RITS was the depository and settlement services for Commonwealth Government securities. These services are now provided by the Austraclear's FINTRACS system.

[2]Special Service Providers are industry bodies of building societies and credit unions.

[3]This need not imply squeezes in the secondary market. The RBA monitors the secondary market throughout the day, and conducts upto two open market operations to implement monetary policy. We conjecture that open market operations in the form of reverse transactions could supply the government security being "potentially" squeezed.

- there is no explicit location requirement for participation at auctions, but with RITS terminal being only in Australia, *de facto* participants are obligated to operate from within the country.

Eligibility criteria for RITS membership is determined by the RBA, and has the following important aspects:

- includes guidelines on capital adequacy, ownership and asset composition;
- RITS membership is *mandatory* for all banks in Australia, whether domestically owned or subsidiaries or branches of foreign banks, and all other holders of an exchange settlement account at the RBA;[4]
- RITS membership is mandatory for all institutions, whether bank or non-bank, that wish to deal with the RBA in its open market operations;[5]

Table 1 gives details about Commonwealth Government debt issuance in Australia.

Table 1: **Quick Facts: Australia**

Feature	**Characteristic**
PD model	No
# of Bidders	146(≈12 OMO counterparties)
Auction Type	discriminatory
Provision for Auction Coverage	not explicit (no upper limit on bidding)
Institution Responsible for Auctions	AOFM
Objectives of Debt Management	cost
Govt Securities as Collateral for Credit	45%

1.2 Obligations and Advantages of RITS Participants

RITS members have no obligation to participate in the primary market or be market makers in the secondary market. RITS members are also not given any commissions or *advantages* in the primary and secondary market for Commonwealth Government securities.

[4]Exchange settlement accounts at the RBA are used for final settlement of payment obligations. Currently exchange settlement account holders include: all 52 registered banks, 2 Special Service Providers and some non-bank institutions with significant third-party payments business.

[5]Currently the RBA deals actively with 12 institutions, possibly all of whom are dealers in government securities.

The *only* advantage for RITS participants is their *exclusive*, though *not* mandatory access, to open market operations conducted by the RBA to implement monetary policy.[6] In addition, a subset of the RITS participants - account holders with exchange settlement accounts at the RBA - have access to end-of-the-day credit,[7] and collateralized, interest-free, daylight overdrafts on the exchange settlement accounts.

1.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

The introduction of the real-time-gross-settlement system in 1998 has led to an increase in the demand for intraday credit. Intraday credit is available through three channels: open market operations with overnight maturity, standing facilities, and collateralized interest-free daylight overdrafts on exchange settlement accounts held at the RBA. Open market operations provide the bulk of interday credit. Commonwealth Government securities are an important source of collateral to access both interday and intraday credit. Starting *exclusively* from Commonwealth Government securities, the pool of eligible collateral for accessing credit has been expanded.[8] As an example, in 2002, the total pool of collateral eligible for domestic operations was composed of around 45% of Commonwealth Government securities, 42% of domestic State Governments securities, 8% of global State Governments securities, and 5% of supranationals.

1.4 Other Issues

Of the 146 RITS participants, the RBA actively deals with only about 12 counterparties, possibly all government securities dealers, in conducting its open market operations. It seems likely that these counterparties with whom the RBA deals for its open market operations, are also the most active players in the market for Commonwealth Government securities.[9]

[6] Open market operations take three forms: outright purchases or sales of Commonwealth Government securities; repurchase or reverse repurchase agreements (repos) for maturity of less than a month; and, foreign exchange swaps. Repos accounted for 100% of the RBA's *domestic* market operations in 2001-2002. The use of foreign exchange swaps as a means of conducting open market operations has increased from 10% to 17% in 2001-02.

[7] End-of-the-day credit is provided by the RBA through standing facilities arrangements to implement monetary policy. Eligible institutions may borrow (deposit) at the end of the day, at their discretion, by entering in an overnight repo with the RBA at a cost of 25 bps above (below) the target cash rate.

[8] This has been the result of three factors: the increased demand for funds in the financial system that followed the introduction of the RTGS in Australia in 1998; the decline of Commonwealth Government securities issuance; the increasing recourse to foreign exchange swaps by the RBA.

[9] This fact could not be confirmed as the identity and participation of these counterparties is not public.

2 Eurosystem Countries

The Eurosystem comprises the European Central Bank (ECB henceforth) and the National Central Banks (NCBs henceforth) of the EU Member States which have adopted the euro. The ECB is responsible for implementing a ***single*** monetary policy and payments and settlement system for countries in the Eurosystem. The fiscal agent role, on the other hand, is left to individual NCBs of the countries in the Eurosystem, even though the domestic debt of each country is denominated in euros. In this sense, there is a separation of fiscal agent and monetary policy agent roles in the Eurosystem. This leads to idiosyncratic features in the issuance procedures of domestic debt in countries of the Eurosystem. Each of these system is described in Sections 2.1-2.5. Since credit for intraday and interday liquidity is provided by the ECB for all countries in the Eurosystem, the extent to which euro-denominated government securities are used as collateral in these operations is described in Section 2.6.

2.1 France

2.1.1 The Basics

The primary dealership system is used to sell government securities in France. Currently there are 21 primary dealers in France, 7 of whom are French institutions, and the remaining non-resident institutions.[10] *Eligibility* criteria for primary dealers includes:

- minimum capital requirements;
- membership of Euroclear France or Clearstream,[11] MTS France, [12] and RGV[13];
- hold an account with the Banque de France;
- have a permanent establishment in Paris with local trading, sales and economic and strategic research teams;
- comply with the business ethics code of the association of French primary dealers.

The debt agency, Agence France Tresor, is responsible for the issuance of government securities. It is not an independent legal entity, but a department of the Treasury Directorate answerable to the Minister of the Economy, Finance and Industry. It issues three categories of standardized government securities: OATs (long-term debt), BTANs (short-term debt) and BTFs (treasury bills); and two types of index-linked bonds: 1 linked to French CPI and the other

[10] Of the non-resident institutions, 8 are from Eurosystem countries, and 6 are American.

[11] Both are international clearing organization.

[12] This is an electronic IDB platform.

[13] RGV is a delivery versus payment system for gross transactions and real-time processing, of fixed-income instruments.

linked to a euro-zone price index. The debt agency does not issue any specific retail product, but a percentage of the 10 year bonds and index-linked 10 year bonds go directly to the retail sector. Within the framework of the primary dealership model, discriminatory price auctions auctions are used for primary issuance. All institutions affiliated to Euroclear France and holding an account with the Banque de France are *eligibile* to bid in the auctions. This implies that primary dealers are *not* exclusive participants in the auction.[14] Bidding takes place through a screen-based bidding and data transmission system, TELSAT. Once the auction is finished, the Banque de France initiates a delivery-versus-payment order in the RGV system for every bidder and every auctioned line. For the first two issues of a new OAT or BTAN line and for each BTF auction, the the maximum amount offered at each price on the bid scale is *fixed*;[15] that is, the rule limits bids at one price by a single participant. This provision is probably a mechanism to prevent a bidder from cornering a primary issuance.[16] Table 2 summarizes the key aspects of debt issuance in France.

Table 2: **Quick Facts: France**

Feature	**Characteristic**
PD model	Yes
# of PDs:	21 (14 foreign)
Auction Type	discriminatory
Non-competitive Bids	only for PDs
Provision for Auction Coverage	yes (minimum bid obligation)
Institution Responsible for Auctions	debt agency
Objectives of Debt Management	cost subject to risk

2.1.2 Obligations and Advantages of Primary Dealers

The primary dealership system started in 1987 as a system where a group of participants was given explicit rights and duties to promote liquidity of the primary and secondary spot market for government securities. By 1996, the role of primary dealers evolved to speed up development of a liquid market in fixed-rate Treasury *repos*. Hence, the role of primary dealers as market-makers for government securities has been formally extended to the repo market.

[14]There are 7 non-primary dealers: 1 French, 6 non-residents of which 2 are Japanese institutions and the remaining are from Eurosystem countries. They are active in the secondary market which broadens and diversifies the secondary market base, but they have no participation obligation in the primary market.

[15]The maximum amount offered at each price (or rate) on the bid scale is fixed at EUR 400 million for BTFs, BTANs and the 10-year benchmark OAT and at EUR 200 million for other OATs.

[16]The debt agency web-site mentions that this is done "in order to maintain an orderly market".

Recognizing this, primary dealers have separate market-making *obligations* in the spot market and the repo market for government securities. Specifically:

- quote firm prices for a minimum quote size, to investors, and other primary dealers on IDB screens, in the spot market for government securities;[17]
- quote on screen, in real-time, fixed-rate repo prices, for all repo transactions in benchmark securities, with maturities of 1 day, 1 week, 1 month and 3 month, and amounts of EUR 100 million, 100 million, 50 million, and 20 million respectively.

Other *obligations* of primary dealers are:

- obligation to bid on each line of any auction, with minimum bidding obligation at treasury bill auctions only;[18]
- promote investment in French government securities, with a large and diversified community of end-investors, both in France and abroad;
- report on monthly primary market activity, secondary market trading, and market intelligence to issuer.

Compared with *obligations*, primary dealers are given few *advantages*. Specifically,

- exclusive right to make non-competitive bids at auctions;[19]
- exclusive right to strip and reconstitute bonds;
- regular meeting with the Treasury.

2.1.3 Other Issues

Despite few *advantages* relative to *obligations*, the French system appears to be working well. There are a large number of primary dealers, there are no noticeable instances of failed auctions or contingency plan for the same. A possible conjecture for this is the development of the repo market in benchmark government securities. The Treasury and Bank of France have played an important role in this.[20] The Treasury web-site declares that the "development of the Paris repo market has helped to make French government securities even more

[17] Securities maturing in less than 18 months are quoted with a maximum bid/ask spread of 15 basis points. Securities whose maturity ranges from 18 months to 6 years are quoted with a maximum bid/ask spread of 8 basis points. Securities with a maturity of over 6 years are quoted with a maximum bid/ask spread of 4 basis points. All quotes are valid for a minimum amount of EUR 5 million.

[18] The form which this minimum bid requirement takes is unclear from public web-sites.

[19] This gives primary dealers preferred, but not exclusive access, to primary issuance. How this non-competitive bidding is done is unclear.

[20] The role ranges from setting up a legal framework for repo trades to extending the scope of the primary dealer model to the repo market.

liquid, and therefore to lower the cost of government debt". In January 2003, repos outstanding at the end of the month stood at EUR 300.3 billion. Daily turnover in French Government securities on Euroclear France in July 2002 was EUR 180 billion. As per the Treasury department web-site, the liquidity of the French market is second only to the U.S.A. This the supported by the broad participation in the ownership structure of government securities.[21]

2.2 Germany

2.2.1 Basic Facts

Germany does not use a primary dealership model to sell securities. The Ministry of Finance is the issuer and debt manager. The German Finance Agency, a business with limited liability,[22] is the central debt management services provider to the issuer. The issuance is done through the Bundesbank which provides bank services to the issuer. Four procedures are used for primary issuance in Germany:

- discriminatory price auctions through the Bund Issues Auction Group;
- market management operations or sales through the German stock exchange;
- topping up or reopening issues done either through an auction or a market management operation;
- tap issuance, whereby securities are sold for an unlimited period by the Bundesbank to *specific* investors.

10-year and 30-year bonds and treasury notes are issued exclusively through discriminatory auctions. 5-year bonds are sold through tap issuance, with a subsequent auction after 6 months, and a possible reopening after 3 months. The remaining securities are sold through tap issuance. Except for government securities intended for specific class of investors which are sold through tap sales, the rest of government securities are *listed* for trading on the official market segment of the *German stock exchange*, following their primary issuance.[23] A portion of the issue amount of all Federal securities listed on the German Stock Exchange is set aside for market management operations. The lack of an exclusive concentration on auctions for primary issuance follows from debt

[21] In 2002, 36.7% was held by insurance companies and pension funds; 35% by non-resident investors; and 15.2% by credit institutions who provide investment services. The fact that non-residents are not subject to the flat-rate witholding tax on government securities, that is levied on French residents, could also be a reason for non-resident ownership.

[22] The only company shareholder is the Federal Government through the Federal Ministry of Finance.

[23] The auction announcement carries the date on which the securities will be listed on the German Stock Exchange.

management guidelines which explicitly state *broadest* possible placement and liquidity of the secondary market as *explicit* objectives.[24]

There are 42 bidders in the Bund Issue auction Group. *Eligibility* criteria for the Bund Issue Auction Group includes:

- be a domestic or foreign credit institutions, securities trading house or securities trading bank;
- for foreign enterprises, having a local branch is not necessary;[25]
- hold a giro account at a branch of the Deutsche Bundesbank;[26]
- hold a custody account at the Clearstream Banking AG Frankfurt.

Table 3 summarizes salient features of debt issuance in Germany.

Table 3: **Quick Facts: Germany**

Feature	**Characteristic**
PD model	No
Primary Issuance Method:	
→ auction	5-, 10-, 30-year bonds, treasury notes
→ market management operations	all
→ reopening	5-year
→ tap issuance	rest
Auction Type	discriminatory
# of Participants in Primary Issuance:	
→ Auction	42
Provision for Coverage	yes
Institution Responsible for Auctions	Ministry of Finance with German Debt Agency as advisor
Objectives of Debt Management	cost, participation, liquidity

[24]While the purpose of reopenings and market management operations is to provide for liquid secondary markets, tap issuances directed at specific investors are done to ensure broader placement.

[25]However the enterprise should be regulated in its country of domicile and the appropriate authorities of the country of domicile should be willing to cooperate with the German Federal Banking Supervisory Office by means of an international agreement.

[26]A giro account is like a settlement accout. Through the giro-accounts network, the Bundesbank offers its account holders services in cashless payment transactions. Its link to TARGET gives its customers access to all other large-value payment systems in the EU as well.

2.2.2 Obligations and Advantages of the Bund Issues Auction Group

When auctions are used to sell government securities, *no* advantages are given to members of the Bund Issues Auction Group. However, participation *obligations* in the primary market are imposed on them. Thus, each member of the Bund Issues Auction Group is obligated to

- submit successful bids for at least 5% of the total issue amounts allocated, weighted by duration, at auctions in one calendar year.

The constraint appears non-binding for the bidders, and appears to have been put into place for auction coverage.

2.2.3 Other Issues

The non-existence of the primary dealership system raises two questions.

First, despite advantages not being awarded, what accounts for the large number of participants in the primary market for government securities. A possible explanation is the liquid secondary market for German government securities. Several factors contribute to this: the listing and trading of government securities on the German stock exchange, the market management operations of the Bundesbank as part of primary market issuance; organization of tap sales *exclusively* for "buy-and-hold" investors in recognition that the market for government securities held by them is illiquid or non-existent at the extreme.

Second, if primary dealers do not exist, who performs the "intermediation" role in the secondary market for government securities. The manner in which the secondary market is organized provides an answer to this question. The German Stock Exchange has two groups of players: specialists and non-specialists. Non-specialists engage in dealing and broking activities. Specialists are intermediaries and at the same time fix prices, a ***special*** feature of the German stock exchange. Explicit *obligations* are imposed on specialists.[27] However, participation in any form in the primary market is *not* a prerequisite for being a specialist. In addition to transacting on the German stock exchange, MTS Germany is an interdealer broker system that allows market-makers to execute transactions electronically amongst themselves.

2.3 Ireland

2.3.1 Basic Facts

Ireland has a primary dealer model for issuance of government bonds since 1995, with the focus being on primary dealers as intermediaries in the secondary market for government bonds. Currently there are 7 primary dealers, with 4 being

[27] Besides fixing spot prices, they are obligated to establish official prices on a continuous basis and have restrictions on their business activities, so that their role as intermediaries is not in conflict.

non-resident institutions, but based in the Eurosystem countries. *Eligibility* criteria for primary dealers includes:

- should be a registered member of the Irish Stock Exchange;
- should be recognized by the NTMA.[28]
- non-resident institutions should be authorized to conduct business under the laws of the jurisdiction in which it is incorporated.

The National Treasury Management Agency (NTMA henceforth) is the debt manager. The *key* objective of the government's debt issuance are: to improve *liquidity* so that government debt can be funded at the lowest *cost*. The NTMA issues short-term paper with maturity of less than a year, and bonds, with the ratio of fixed to floating debt being 63% to 37% at the end of 2001. Primary bond issuance is confined to three sectors, 5, 11, and 14 years, in order to build-up *large* benchmarks. The following methods are used to issue short-term paper and bonds:

- short-term paper is sold through a direct dealing "window" at the NTMA that is accessible to a broad range of investors and not just primary dealers;
- new bonds are issued via competitive auctions, tap sales and switch operations, with all three being conducted *exclusively* through primary dealers.

Key features of the competitive auction are:

- discriminatory price auctions held through the Bloomberg auction system, with the possibility of conducting the auction by telephone;
- a non-competitive auction following each auction;[29]
- amount not sold in the non-competitive auction is not offered for sale to the market subsequently;
- NTMA does not issue a tap or provide switching facilities, in the bond maturity range being auctioned, during the five business days before the auction, and two business days after the auction.

Key features of tap issuance are:[30]

- they are announced on IDB screens, and are open for two minutes after the announcement;
- the announcement carries the tap price and the amount targeted;

[28]The recognition is based on the institution's dealing capability, marketing strategy including demonstrated geographic distribution capacity and it's ability to develop new client investment in Irish Government bonds, and it's ability to support the NTMA's funding.

[29]The NTMA accepts bids for the non-competitive auction for a period of up to two business days, at the weighted average price in the competitive auction, for an amount not exceeding the 20% of the amount sold to the primary dealers in the current competitive auction.

[30]The issuer sells a pre-specified amount at a fixed price in a tap issuance.

- the amount unsold in the tap and the price are indicated on the IDB screen only, and resold sold on a first-come-first-served basis during the official market hours of 8:00 a.m. to 4:00 p.m.

Key features of switch operations are:

- switches can be initiated either by the NTMA or a primary dealer;
- switches initiated by the NTMA are conducted like tap sales *except* that they can be announced anytime during the official market hours of 8:00 a.m. to 4:00 p.m.;
- switches initiated by the primary dealer are dealt with bilaterally between the primary dealer and NTMA.[31]

Table 4 summarize the salient features of primary debt issuance in Ireland.

Table 4: **Quick Facts: Ireland**

Feature	**Characteristic**
PD model	Yes
# of PDs	7 (4 non-resident)
Primary Issuance Method: → *short-term paper* → *Bonds*	 direct dealing "window" at NTMA competitive and non-competitive auction, tap sales, switches
Auction Type	discriminatory
Provision for Auction Coverage	yes (minimum bid obligation, non-competitive auction)
Institution Responsible for Auctions	NTMA
Objectives of Debt Management	liquidity, cost

2.3.2 Obligations and Advantages of Primary Dealers

Primary dealers are subject to the following *obligations*:

- primary market participation obligation;[32]

[31] Their purpose is to to ***assist*** primary dealers in managing their positions, and are normally priced at the current bid or offer levels, as the case may be, obtaining in the market.

[32] This requires that a primary dealer's winning share in NTMA's gross funding (excluding stock switching and repo related issuance), reflects its relative retail market turnover, with a minimum of 7 per cent of the annual auctions and any taps take-up. For the purpose of this obligation, the retail market excludes repos and reverse repos, transactions between the NTMA and primary dealers, transactions between primary dealers themselves and transactions on the EuroMTS and MTS Ireland electronic trading platforms.

- market making obligations in the *electronic secondary* market for government securities.[33]

Key *advantages* given to primary dealers are:

- exclusive access to competitive auction, the following non-competitive auction, tap operations and switch operations initiated by the NTMA;
- NTMA's role as a bidder of last resort in the secondary market for the primary dealers.[34].

2.3.3 Other Issues

The *key* distinguishing characteristic of government debt issuance in Ireland is the active participation of the NTMA in the secondary market for government securities. Recognizing the commercial pressures faced by the primary dealers, NTMA's participation is for the *explicit* purpose of promoting secondary market liquidity, and in the process supplementing the market-making role of the primary dealers. Thus:

- Irish government bonds are listed on the Irish stock exchange, and the NTMA quotes prices directly to members of the Irish Stock Exchange in the designated benchmark bonds for amounts up to 100,000 euros to facilitate purchase of bonds by small investors;
- NTMA's role as bidder of the last resort in the secondary market;[35]
- NTMA operates a secondary trading function to trade in bonds through the retail market, including agency-only brokers;
- NTMA operates a portfolio that trades anonymously with the six primary dealers on IDB platforms.

[33] This has two parts. *First*, primary dealers are obliged to make two way prices between 8:00 a.m. and 4:00 p.m. on every day on which the Irish Stock Exchange is open, on bonds designated by the NTMA. This is done by continuously displaying electronically for the designated bonds, two-way indicative prices at which investors can expect to transact, with minimum quote sizes and maximum spreads specified by the NTMA. *Second*, primary dealers are obligated to play an active role in the trading of Irish Government bonds on the IDB electronic trading platforms, EuroMTS and MTS Ireland.

[34] The NTMA performs this role by allowing primary dealers: exclusive ability to initiate switches to manage positions; exclusive access to a bond repo and reverse repo facility, to borrow bonds or cash, to cover short positions on a secured basis in bonds in which they are committed to quote two-way prices; the right to request a firm bid price from the NTMA on telephone, in EUR5 million size, in each of the bonds in which primary dealers are obliged to quote prices.

[35] Secondary market liquidity is enhanced as primary dealers are able to manage their inventories more efficiently with the NTMA's presence as a bidder of the last resort.

2.4 Italy

2.4.1 Basic Facts

The primary dealership system is being used to sell government securities in Italy, with the focus being on the role of the primary dealer as a committed liquidity provider in the secondary market. Only operators selected to participate as market-makers in the ***regulated*** secondary market for government securities are allowed to participate in the primary market.[36] From the group of market-makers in the regulated secondary market, the treasury selects a subset called *specialists*, on whom it imposes obligations and confers advantages. Thus, these *specialists* are primary dealers in Italy. Currently there are 16 primary dealers, 10 of whom are foreign institutions. The key *eligibility* criteria for primary dealers is:

- have a minimum net regulatory capital requirement;
- have the authorization to operate in the electronic market for Government bonds, MTS, as a market-maker;[37]
- sign an agreement with the Bank of Italy regulating the auctions for the placement of bonds.

The Department of Treasury is the issuer and the debt manager. "Minimizing cost" and "increasing the liquidity of the securities issued" are the two major goals of debt issuance. The Treasury is also responsible for the set-up of the legal framework for the Italian Government Bond market. The Bank of Italy is a supervisory body in the market for Italian Government Bonds. Virtually all public debt is in the form of marketable securities ranging from 3-months to 30 years;[38] index-linked treasury securities are not sold.

Within the framework of the primary dealer model, two methods are used for primary issuance of government debt.

First, competitive auctions with the following features:

- discriminatory price for treasury bills with maturity of less than a year, and uniform price for the rest;

[36]The regulated secondary market for government securities is a screen-based market, that is owned by a private firm called MTS.

[37]MTS selects firms as market-makers on the basis of their patrimonial stability and volume traded on the market. Currently there are 26 market-makers in addition to the primary dealers. Market-makers are *obligated* to trade continuously on the MTS by posting a bid and ask, and the maximum number of bonds they commit themselves to trade. The *advantage* they have over the 360 investors operating on MTS, is that the latter can trade on MTS only by placing orders with market-makers. While having access to the MTS screen, investors cannot post bid and ask prices.

[38]The composition of the outstanding Treasury debt is: 53.5% of fixed-rate bonds of maturity 3, 5, 10, or 30 years; 10.9% of treasury bills with maturity of less than a year; 7.5% of treasury bills with a maturity of 18 and 24 months; 22.3% of floating-rate notes with a maturity of 7 years.

- a "threshold price" and the algorithm used to to calculate this price is made publically available;[39]
- bidding is not confined to primary dealers; rather, all market-makers in the regulated secondary market for treasury securities, and registered by the Bank of Italy, are *eligible* to bid;
- bidding is done via a network based system at the Bank of Italy any day after the announcement date;
- for 6-month treasury bills, and medium and long-term bonds, a reopening accessible *only* to primary dealers, follows the competitive auction.[40]

A possible purpose of the reopening round appears to be auction coverage.[41]

Second, since 2000, in addition to auctions, issues in foreign currency and in Euro are being syndicated, with the syndication done *exclusively* through primary dealers. The syndication programme aims at making profit from specific investor preferences. As a result, the issues to be syndicated and the amounts depends mainly on the financial market conditions.

Table 5 summarizes salient features of debt issuance in Italy.

2.4.2 Obligations and Advantages of Primary Dealers

Primary dealers are subject to the following *obligations*:

- primary market participation obligations;[42]
- efficient participation in the secondary market as measured by qualitative and quantitative parameters;[43]

[39] The treasury rules explicitly state there is no reserve price, and that the purpose of the "threshold price" is to limit bidders' speculative behaviour.

[40] 10% and (25%), respectively, of the issue amount in an auction is made available to specialists till 12.00 am of the first business day following the auction at the marginal price in the auction round of a uniform price auction and the weighted average price for discriminatory price auctions. The maximum amount available to each specialist is proportional to the overall market share obtained in the last three auctions with respect to the amount subscribed by specialists only.

[41] As I shall note in Section 2.4.2, primary dealers are obligated to have a primary market share of *at least* 3% of the total bonds issued on an annual basis. With 16 primary dealers, there is a likelihood that the issue amount is not sold on the *exclusive* basis of primary market participation obligations.

[42] Primary dealers are obligated to have a primary market weighted share of *atleast* 3% of the total bonds issued on an annual basis, with weights given to nominal amounts bought in each bond sector.

[43] These parameters include: *number* of quoted bonds for at least 5 running hours in a day for several market days; *bid-ask* spread for each market day that is equal to the mean of the standardized bid-ask spreads of quoted bonds, with off-the-run bonds included too; *repo* market activity as measured by market share with reference to general collateral and special repo; volume and number of *traded* bonds; share in securities exchanges in the year; a discretionary evaluation of performance in the secondary market by the Bank of Italy.

Table 5: **Quick Facts: Italy**

Feature	**Characteristic**
PD model	Yes
# of PDs	16 (10 foreign)
Primary Issuance Method	competitive auction, non-competitive auction for PDs, syndication through PDs
Auction Type: → *less than 1-year* → *rest*	 discriminatory uniform
Provision for Auction Coverage	yes (minimum bid obligation, re-opening following auction)
Institution Responsible for Auctions	Treasury
Objectives of Debt Management	liquidity, cost

- customer satisfaction.[44]

Key *advantages* given to primary dealers are:

- exclusive access to the reopening option following an auction;
- exclusive access to syndicated issues;
- exclusive right to participate in buy-back auctions;
- exclusive right to strip and reconstitute bonds.

2.4.3 Other Issues

The focus of the primary dealership system in Italy appears to be on developing a liquid and active secondary market for government securities with a view to lowering the funding cost of government debt while widening the investor base. Several steps have been taken to accomplish this:

- viewing primary dealers as committed liquidity providers by imposing non-binding primary market obligations;
- measuring primary dealer's performance through parameters that are based on the spot and repo market behaviour;
- development of the regulated, electronic secondary market for government securities, MTS.[45]

[44]Customer activity is assessed by sending out questionnaires to clients according to the geographical distribution of a primary dealer's client base.

[45]With the introduction of the MTS the share of non-resident in Treasury securities has

2.5 Spain

2.5.1 The Basics

The primary dealership system is being used to sell government securities in Spain. Currently there are 21 primary dealers, 12 of whom are non-resident institutions.[46] Primary dealer status is officially granted by the General Directorate of the Treasury and Financial Policy subject to a favourable report from the Bank of Spain.[47] The Treasury is the issuer of Government Debt securities. The Bank of Spain acts as the State's financial agent through the management of the *book-entry* system.[48] The main objectives of the Treasury in managing its debt are: ***stable*** financing flows, ***reduce*** the cost of finance, adequate degree of market liquidity, and offer investors an attractive financial instrument. The Treasury issues 12 and 18 month treasury bills, and 3,5,10,15 and 30 year bonds.

Within this framework for participation in primary issuance, two methods are used for primary issuance of government debt.

First, through a competitive auction with the following features:

- a "Spanish" pricing rule;[49]
- auction participation is not confined to primary dealers;[50]
- participants lodge their bids with the Bank of Spain via their computer terminals with the Bank of Spain Settlement Service, or by calling them in via the Money Market Telephone Service;
- a limit could be placed on the number and maximum amount of competitive bids that each auction participant can submit;
- a minimum stop-out price can be set as well.
- non-competitive bids are allowed, with a limit per bidder for non-competitive bids;

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increased dramatically. For example, their share in treasury bills with maturity under a year has increased from 1% to 54%, and of fixed-rate bonds with maturity of 3, 5, 10 or 30years from 26% to 39%.

[46] The status of primary dealers was granted only to institutions resident in Spain till March 1999; subsequently it has been extended to non-resident institutions.

[47] The criteria for acceptance is not clear, except that the institution must have technical and human resources at their command for market-making function.

[48] This is a system for recording, clearing and settlement of public debt operations managed by the Bank of Spain.

[49] The pricing rule used in a "Spanish" auction combines elements of both uniform and discriminatory pricing rule and is used only in Spain.

[50] The bidders in the auction can be categorized into four: Account Holders in the Book-Entry system, Management Institutions, individual investors and primary dealers. Account Holders bid on their own account.Management Institutions can bid on their own behalf and on behalf of third parties; while they submit their own and third parties' bids together without distinction, on the day of the issue, they give ***separate*** notification of the amount allocated to third parties. Individual investors can submit bids either through a Management Institution or an authorized placement agent or by going directly to the Bank of Spain.

- the possibility of a second round, on the next business day following the auction,[51] held ***exclusively*** for primary dealers.

The purpose of the second round appears to be auction coverage.[52]

Second, through a syndicate who agree to underwrite the issue, and act as counterparty in the secondary market. While general guidelines are not mentioned, it appears that syndication is favoured when the aim of the seller is to engage directly with final investors with the aim of optimizing distribution towards special-interest investor groups. [53] The syndicate comprises of primary dealers, with a subset forming a lead group.

Table 6 summarizes salient features of debt issuance in Spain.

Table 6: **Quick Facts: Spain**

Feature	**Characteristic**
PD model	Yes
# of PDs	21 (12 non-resident)
Primary Issuance Method	auction, syndication through PDs
Auction Type	Spanish
Non-competitive Bids	yes
Provision for Auction Coverage	yes (minimum bid obligation, re-opening round)
Institution Responsible for Auctions	Treasury
Objectives of Debt Management	liquidity, cost, variance

2.5.2 Obligations and Advantages of Primary Dealers

Primary dealers are subject to the following obligations:

- primary market participation;[54]

[51] A maximum of 20% of the nominal amount of each bond allocated at an auction is issued in this second phase, and all bids are rewarded at the weighted average price arising from the auction phase.

[52] While primary dealers are subject to primary market participation obligations, described in Section 2.3.2, they are unlikely to ensure auction coverage on their own.

[53] The ***most*** recent example of this has been in 2002 when syndication was used to distribute the ne 15-year benchmark. The reason for using syndication was to target special-interest investor groups (30% to pension funds, insurance companies and central banks, and 83% to be sold outside Spain), and bring the volume outstanding rapidly up to strength. The syndicate comprised the 21 primary dealers with five acting as lead managers.

[54] This involves submitting bids for a minimum nominal value of 3 per cent of the amount allocated at the last three auctions of each Bond, at prices no lower than the marginal rate minus 5 basis point in the case of three-year Bonds, 10 basis points for five-year Bonds, 15 basis point for ten-year bonds, and 30 basis points for bonds with maturities over ten years.

- guarantee secondary market liquidity;[55]
- furnish information requested by Treasury.[56]

Key *advantages* given to primary dealers are:

- *preferred* access to auctions,[57] and exclusive access to syndicated issues;
- exclusive right to strip and reconstitute strippable Government Debt securities.

2.5.3 Other Issues

Between the primary and secondary market obligations on primary dealers, the key emphasis appears to be on primary market participation obligations. *Stricter* secondary market obligations are imposed on another group of secondary market participants singled out by the Treasury: *government debt dealers*.[58]

This is the key to understanding the Spanish sytem. An ***explicit*** distinction is made by the Bank of Spain viz-a-viz three types of activities: clearing and settlement, Bank of Spain's execution risk in primary issuance, and committed liquidity provision in the secondary market. Recognizing this distinction, it has attempted to split off the three activities, while conceiving an *intermediation* model for each of three. Depending on the activities a counterparty wants to intermediate, obligations are imposed, and advantages, if any, are given. Thus, primary dealers intermediates to reduce execution risk. The *government debt dealer* intermediates in the secondary market by being a committed liquidity provider. Finally, the *market member* intermediates clearing and settlement of securities in the secondary market,[59] and *management institutions* in the primary market.[60]

[55] Primary dealers are obligated to quote and trade a minimum of 13 bonds on the *book-entry* public debt interdealer broker network.

[56] This includes sending monthly reports of direct and third-party transactions in the primary and secondary markets.

[57] Primary dealers have thirty minutes to present their bids after the auction deadline for submitting bids. They also have *exclusive* access to a second round following the auction.

[58] They have two obligations: First, have at least a 1% share of the total monthly trading on the *book-entry* public debt interdealer broker network, defined as the sum of spot transactions in government bonds. Second, quote on the *book-entry* public debt interdealer broker network screen over at least 60% of the time of each session on official Spanish market business days, the five references designated as benchmarks in the 3,5,10,15 and 30 years sector. The dealer has to quote a bid and ask, subject to an upper limit on the bid-ask spread specified by the Treasury, for a minimum amount of 5 million Euros.

[59] *Market members* are empowered to purchase and sell securities in the *book-entry* system on their own or other's behalf; for this purpose they hold an account in the *book-entry* system.

[60] *Management institutions* manage the accounts of participants which are not authorized to operate directly in the primary market through the *book-entry* system. For these purposes, they hold a global account in the *book-entry* system.

2.6 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

The payments and settlement system in the Eurosystem countries is organized as a real-time, gross settlement system, TARGET. This has implied a large demand for intraday liquidity. The ECB provides intraday liquidity *chiefly* in two forms: daylight overdrafts on settlement accounts and standing facilities, with all daylight overdrafts at the end of the day treated as a request for the use of the standing facility.[61] The bulk of interday liquidity is provided through open market operations called the main refinancing operation and long term financing operation.[62] Currently, the collateral for these operation is:

- 39% (56% in 1999) of the collateral used for main refinancing operations consists of euro-denominated government securities;
- 23% (46% in 1999) of the collateral used for long term refinancing operations consists of euro-denominated government securities;
- 70% (the same in 1999) of the collateral used for intraday credit operations consists of euro-denominated government securities;

[61] Daylight overdrafts are available to counterparties with settlement accounts are the ECB/NCBs. They take two forms: they are allowed against adequate collateral; intraday credit is provided through an interest-free reverse operation, with the NCB.

[62] These operations are conducted through *general* counterparties. The key eligibility criteria for these counterparties is to satisfy the minimum reserve requirement. There are around 2,500 *general* counterparties.

3 Japan

3.1 The Basics

The primary dealer model is not being used in Japan for primary issuance of government securities. However, a primary dealership system exists for open market operations conducted to implement monetary policy.[63]

The Ministry of Finance is the debt manager, but entrusts the issuance procedures to the Bank of Japan (BOJ henceforth). The key objectives of debt issuance are "smooth and stable financing", and "curbing financing costs over many years". It issues several instruments in the money market and bond market for this purpose. In the money market, the BOJ issues 13 week financing bills and 6 month and 1 year treasury bills. In the bond market, issuance ranges from 2 years to 30 years, and takes the form of either semi-annual coupon-bearing bonds or discount bonds. Inflation-indexed bonds are planned to be introduced this fiscal year.

The BOJ issues government securities through:

- underwriting by a syndicate (5-year discount government bond);
- public offerings via discriminatory price auctions (remaining government securities, except for the 10-year bond);
- a combination of the two *only* for the 10-year, coupon-bearing government bonds.

The syndicate system is described to be a means for the government to conclude a contract for public offering or underwriting the full amount of government bonds with a group established for that purpose. Syndicate members are paid an underwriting commission.[64] Financial institutions and Japanese or foreign securities firms that are certified for underwriting are *eligible* to be syndicate members,[65] with syndicate membership being given on application to the existing syndicate members. Currently there are 1,720 syndicate members including banks, securities firms, etc.[66]

Auctions for government securities are conducted with a subset of the syndicate members. The terms of the auction are announced a week prior to the auction. In January 2002, between 273-310 bidders were allowed to participate

[63] Discriminatory price auctions conducted *more* than once a day, with 30-50 counterparties, are used to conduct open market operations. *Eligibility* criteria for open market operations counterparties includes: be a financial institutions, securities companies, securities finance companies or tanshi companies (interbank-market money traders); have a current account at the Bank of Japan; have access to BOJ-NET, the real-time-gross settlement system; carry a certain standard of creditworthiness.

[64] For example, in 2001 underwriting commission was 0.63 Yen per par value of 100 Yen before tax.

[65] It is unclear from public documents how this certification is done.

[66] It in unclear how the issue amount is split between syndicate members.

in the auctions.[67] The *eligibility* criteria to bid in an auction is unclear from public sites. A non-competitive auction is held simultaneously with a competitive auction, with 10% of the total issue amount being sold through the non-competitive auction. Eligible bidders can participate in *either* one of the auctions. While competitive auctions are held as discriminatory price auctions, non-competitive auctions are executed at the average price paid in the competitive auction. The maximum amount of bids for each participant is 500 million yen.[68]

For the 10-year coupon-bearing government bond, 60% of the issue amount is distributed to syndicate members via an auction, while the remaining 40% is distributed to syndicate members at the average auction bid price price, according to their underwriting share. For the auction part of the issuance, syndicate members with a share of less than 0.3% can bid either through a discriminatory price auction or a non-competitive bidding system. The non-competitive auction is executed at the average price paid in the competitive auction, and each bidder can bid upto a maximum of 1% of the issue amount.[69] If the auction is not covered, syndicate members are expected to underwrite the uncovered portion of the auction.

Table 7 summarizes the key facts of primary issuance in Japan.

3.2 Obligations and Advantages of Participants in Primary Issuance

When auctions are used for primary issuance of government securities, obligations are not imposed on, and advantages are not given to, any counterparty. When syndication is used for primary issuance, syndicate members are obligated to provide a *guarantee* for the full issue amount in the primary issuance process. In return, they are given a fee, which comprises an advantages.

In contrast, open market operations counterparties of the Bank of Japan are subject to obligations.[70] They are *obligated* to:

- bid actively in open market operations;
- accurately and timely processing of transactions;
- provide market information and analysis to the Bank of Japan.

With open market operations being the most important source of intraday credit, the key *advantage* of the open market operations counterparties is their *exclusive* access to these operations.

[67] Identity of these bidders, their domestic-foreign composition was unavailable.

[68] It is also unclear what happens if the auction is not covered.

[69] Specifically, the maximum bid amount for the non-competitive auction is 40% of the issue amount multiplied by the underwriting share.

[70] Currently, the overlap between open market operations counterparties and primary market participants is unclear.

Table 7: **Quick Facts: Japan**

Feature	**Characteristic**
PD model:	
→ *Debt Issuance*	No
→ *OMO*	Yes (20-30)
Primary Issuance Method:	
→ 5-year, discount bond	syndication
→ 10-year, coupon bond	auction-syndication
→ rest	auction
Auction Type:	
→ competitive auction	discriminatory
→ non-competitive auction	average price paid in competitive auction
# of Participants in Primary Issuance:	
→ Syndication	1,493
→ Auction	273-310
Provision for Coverage	syndication
Institution Responsible for Auctions	Ministry of Finance
Objectives of Debt Management	cost, variance of cost
Govt Securities as Collateral for Credit	repo: 64%(repo)

3.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

The BOJ operates a real-time gross settlement system. Intraday credit to settle payments on this sytem is provided through three channels: open market operations with overnight maturity[71]; collateralized, interest-free daylight overdrafts on settlement accounts; and the Lombard facility, a lending facility offered by the BOJ at the end of the day.[72] The bulk of liquidity is provided by the BOJ through open market operations.[73] All liquidity provision operations are collateralized, with a "pooled collateral" scheme being used since the intorduction of the RTGS system in 2001.[74] Currently 50% of the outstanding "pooled collat-

[71] Open market operations are held more than once in a day.

[72] Daylight overdrafts and the Lombard facility is offered to all counterparties who have a current account with the BOJ. Only a subset of counterparties with settlement accounts, participate in open market operations.

[73] The average amount of liquidity provision in October 2002 was spilt as follows: 50% of liquidity was provided by BOJ through repurchase agreements, 44% through outright purchase of bills, and 4% through daylight overdrafts.

[74] Under the "pooled collateral" scheme, the total value of the collateral provided by counterparties to the BOJ must have a value equal or above the total amount of credits provided, irrespective of whether the credit was given in the form of daylight overdrafts, bill purchases, and security of treasury funds operations. Prior to this scheme, the BOJ segregated collateral

eral" is being utilized. Government bonds accounted for 70-80% of the utliized collateral for liquidity provision. The main reason for the large share of government bonds is the increase in issuance volume, and an increase in the amount of government bonds owned by financial institutions. The key reason for the latter is that government bonds can now be processed electronically, and it is thus less costly for the Banks to submit and withdraw government bonds as collateral rather than bills, loans on deeds, commercial paper and other types of collateral.

3.4 Other Issues

There are several reasons to believe that the secondary market for government securities is fragmented and relatively illiquid.[75] This could be one of the reasons for organizing primary issuance to ensure broad participation.

by the type of liquidity provision facility.

[75]Fragmentation is suggested by the following: the variety of government securities issued; the variety of tools used to conduct open market operations. Relatively illiquidity secondary markets are suggested by the following: dominance of over-the-counter trade; volume and price transparency only through inter-dealer brokers; government bonds listed on stock exchanges but rarely traded.

4 New Zealand

4.1 The Basics

The *primary dealer model* is not used in NZ to sell government securities. Participants in the primary market for NZ Government securities consist of a number of Registered Bidders with the Reserve Bank of New Zealand (RBNZ henceforth). Salient features of participation in primary issuance are:

- participation is *not constrained* either by the type or domicile of the institution;

- *eligibility* criteria comprises of creditworthiness,[76] and membership of Austraclear, the wholesale payments and settlement system;[77]

- There are currently 18 Registered Bidders, mainly registered banks, with the non-bank Registered Bidders being financial institutions.[78]

The New Zealand Debt Management Office (NZDMO) is responsible for the government's debt and cash management and the Reserve Bank of New Zealand (RBNZ) acts as the issuing, paying, and registrar agent.[79] The NZDMO's objective is "to maximize the long-term economic return on the Government's financial assets and debt in the context of the Government's fiscal strategy, particularly its aversion to risk". The NZ Government issues Treasury bills, nominal bonds, inflation-indexed bonds, and Kiwi Bonds. Treasury Bills and nominal bonds are issued via multiple-price auctions and inflation-indexed bonds via uniform-price auctions. Kiwi bonds are issued on a tap basis, and are designed for retail investors.

The NZ auction system has two idiosyncratic features, both of which seem directed towards covering the issue amount in an auction:

- bid amounts above the "deposit-exempt bidding limit" granted by the RBNZ to each Registered Bidder have to be collateralized by cash or NZ Government Securities. Since the limits are above the largest tender size, the constraint appears nonbinding;[80]

[76] This is judged through credit rating and financial situation.

[77] The latter requirement follows from bidding in the primary market being done through the Austraclear's electronic tendering facility.

[78] Since a list of Registered Bidders in unavailable, the foreign-domestic composition could not be ascertained.

[79] The NZDMO's is responsible for making all "pricing" decisions on Government securities and to advise the Minister of Finance on the size and structure of the borrowing program. The RBNZ acts as NZDMO's issuing agent and conducts daily liquidity management operations and Treasury Bills and Government Bonds tenders on its behalf. The RBNZ is also the registrar and paying agent for government securities (for coupon and principal payments).

[80] While this may seem to lead to concentration in an auction, daily open market operations conducted as reverse repos, accessible only to Registered Bidders, could possibly be used to neutralize the effect of any concentration in the auction.

- there could be a reallocation of the total amount issued in each tranche compared with the amount offered in the auction announcement since the NZDMO reserves the right to accept oversubscription in a particular tranche,[81] subject to the provision that the total amount auctioned in all tranches is not greater than the total amount offered.

Table 8: **Quick Facts: New Zealand**

Feature	**Characteristic**
PD model	No
# of Bidders	18
Auction Type:	
→ *Bonds*	discriminatory
→ *Bills*	discriminatory
→ *Index-linked bonds*	uniform
→ *kiwi bonds*	tap
Provision for Auction Coverage	yes (deposit-exempt bidding limit, reallocation of issue amount)
Institution Responsible for Auctions	NZDMO
Objectives of Debt Management	cost
Govt Securities as Collateral for Credit	100% (OMO, SF) 35% (autorepos)

4.2 Obligations and Advantages of Registered Bidders

Registered Bidders have *no obligation* to participate at an auction or to make market on the secondary market. Registered Bidders have also *not* been given any real *advantages* in the primary or secondary market for government securities.[82] An advantage *unrelated* to debt issuance is their *exclusive* access to RBNZ's open market operations to implement monetary policy. Registered Bidders who have settlement accounts at the RBNZ, also have *exclusive* access to overnight reverse repo facility offered by the RBNZ as a monetary policy implementation tool. In both instances participation is *not* mandatory.

[81] The NZDMO reserves the right to accept oversubscription up to 50% of the amount offered in any maturity at a Treasury Bill auction, and up to 25% at a bond auction.

[82] Registered Bidders can submit bids at auctions on behalf of their clients under the Registered Bidders' name.

4.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

The introduction of the real-time, gross settlement system in 1998 has led to an increase in the demand for intraday credit. Intraday credit is provided through three operations: open market operations with overnight maturity,[83], standing facilities in the form of a reverse repos,[84] and autrepos.[85] The bulk of intraday credit is provided through open market operations. The collateral used in the interday and intraday credit operations are:

- open market operations and standing facilities: *only* NZ Government securities;
- autorepos: 25% performed using Treasury Bills, 10% using Government Bonds, and 60% using bank paper.

4.4 Other Issues

Registered Bidders, the NZDMO's government securities counterparties are also the RBNZ's open market operations counterparties. Standing facilities and daylight overdrafts can be accessed *only* by institutions with settlement accounts at the RBNZ. Currently it is known that there is a distinct overlap between Registered Bidders and institutions with settlement accounts at the RBNZ; however, it is unknown whether the latter are a subset of the former.

[83] They are conducted exclusively through Registered Bidders as reverse repos since 2000.

[84] Institutions holding settlement accounts at the RBNZ can obtain, *on demand*, an unlimited amount of cash *overnight* from the RBNZ through a reverse repo transaction at 25 bps above the OCR

[85] These are zero-interest, collateralized, daylight overdrafts on settlement accounts allowed by the RBNZ to institutions who have a settlement account at the RBNZ.

5 Sweden

5.1 The Basics

The Swedish Government bond market is based on a Primary Dealer system with primary dealers referred to as authorized dealers (ADs henceforth). Due to declining government debt, there has been a decline in the number of ADs in the last four years. From 15, at the present time there are seven ADs, six domestic and one foreign, for Treasury bills and bonds, and five ADs, all domestic, for index-linked bonds.[86] All ADs are either commercial banks or brokers. The *key* eligibility criteria for ADs is:

- be entitled to conduct securities business in Sweden;
- obtained permission to participate in trading on the Stockholm Stock Exchange, *Stockholmborsen*.

Government securities are issued by the Swedish Debt management office (SNDO henceforth) with the objective of minimizing long-term cost while taking risks into account.

Table 9: **Quick Facts: Sweden**

Feature	**Characteristic**
PD model	Yes
# of PDs:	
→ *Bonds, Bills*	7 (1 foreign)
→ *Index-linked bonds*	5 (all domestic)
→ *Foreign exchange market*	11 (7 located abroad)
Auction Type	discriminatory
Non-competitive Bids	inflation-linked (for PDs)
Provision for Auction Coverage	yes (monetary commissions)
Institution Responsible for Auctions	SNDO
Objectives of Debt Management	cost subject to risk
Govt Securities as Collateral for Intraday Credit	10% (repos) 20% (intraday liquidity)

Currently the SNDO issues bonds, inflation-linked bonds, and treasury bills through discriminatory price auctions conducted *exclusively* through the ADs. Bids are placed electronically via SAXESS.[87] The SNDO has not set a limit on

[86] Since a large proportion of the fiscal debt is issued in the form of government securities denominated in foreign currency, a primary dealership system exists for the foreign exchange market too. There are 11 primary dealers, seven of whom are located abroad. Additional details could not be found.

[87] SAXESS is an electronic trading platform that is a part of the Stockholmborsen (Stockholm Stock Exchange).

the share allocated to a single AD in an auction. Rather it prevents a squeeze for a new bond issue through a special repo facility offered to the ADs immediately after the first auction of a new bond.[88] Non-competitive bids are allowed *only* in auctions for inflation-linked bonds, and *only* to ADs.[89] See Table 9 for a summary of these key features.

5.2 Obligations and Advantages of Primary Dealers

The key *obligations* of the primary dealers are:

- *participation* at each auction at prices which are reasonable with respect to the market rates at the time of the auction;[90]
- maintain a primary market share of not less than 2.5% on a calendar quarter basis;
- maintain a market share of not less than 2.5 per cent of total turnover in the secondary market on a calendar quarter basis.

A *new obligation* in the secondary market concerns market making in benchmark bonds on the electronic trading platform SAXESS,

- post ***binding*** bid/ask quotes in the 2, 5, 10-year benchmark bonds, with a spread of at most two basis points, on minimum quoted volumes of SEK 100, 50, 25 million, respectively.

Key *advantages* given to primary dealers are:

- exclusive right to primary issuance;
- exclusive access to repo facilities;
- monetary commissions for primary market and secondary market participation.[91]

With primary market participation obligations *not sufficient* for auction coverage,[92] monetary commissions for primary market participation would improve auction coverage, as well.[93]

[88] The repo facility is for approximately SEK 20 billion, and is offered at 15 basis points below the Riskbank's overnight target rate.

[89] A maximum of 20 per cent of the amount allotted at the most recent auction at the auction's average accepted bid yield is allowed.

[90] Participation could be on their own behalf or that of clients.

[91] A basic semi-annual commission of SEK 400,000 is paid to ADs who meet the obligations specified above. On top of this, a primary and secondary market commission is given. Primary market commission is based on the auction winnings with a total commission of SEK 2,5000,000 per half-year. For the secondary market commission, a total semi-annual commission of SEK 600,000, multiplied by the number of ADs is distributed among all ADs depending on their market share of the total turnover on the electronic trading system, SAXESS. For index-linked bonds, only a basic commission and a commission for primary market participation is given. No commission is paid for secondary market participation.

[92] ADs are obligated to have a primary market share of 2.5% and there are 7 ADs.

[93] From the auction data available on the SNDO web-site, it was observed that several auctions were uncovered in blah years.

An *advantage* given to the primary dealers, that is *unrelated* to the primary and secondary market for government securities is that the ADs are the *exclusive* counterparty of the Riksbank in open market operations conducted for monetary policy implementation.[94]

5.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

Since the introduction of RIX in 1999, a real-time gross settlement system, there has been an increase in the demand for intraday credit. The *chief* form in which intraday liquidity is provided by the Riksbank,[95] is through interest-free, collateralized daylight overdrafts on accounts with the RIX payments system, that RIX participants are obligated to hold.[96] Interday credit is provided through open market operations conducted primarily as repos of one-week maturity with ADs. While domestic government securities are a part of the pool of collateral for intraday credit, they account for a maximum of 20% of the collateral posted by the RIX participants. For monetary policy repo operations, government securities account for a maximum of 10% of the collateral held for monetary policy repos. In both instances, the rest of the collateral is in the form of mortgage bonds.[97] There are two reasons for the small proportion of collateral held in the form of government securities, and a large proportion held in the form of mortgage bonds:

- the market for mortgage debt is of the same size, but less *liquid*, in terms of turnover, than the government bond market;[98]
- a significant proportion of the fiscal debt is being issued in the form of foreign currency denominated bonds.[99]

[94]The extent to which this is an advantage is questionable as the chief source of intraday credit appears to be daylight overdrafts on RIX accounts, and these overdrafts are available to all RIX participants, not just ADs. The next section discusses these overdrafts.

[95]End-of-the day credit is provided through standing facilities and fine-tuning operations. Relative to daylight overdrafts, these constitute a small proportion of intraday credit.

[96]There are currently 24 RIX participants. All ADs are RIX participants.

[97]These are bonds issued by mortgage institutions, whose main operations comprise real estate financing. They are the largest sub-group in the credit markets companies group, accounting for over 70% of the group's total balance sheet. There are are a total of 10 mortgage companies; except for two, that are state owned, the rest are owned by banks.

[98]While there are buy-and-hold investors, especially insurance companies and especially pension funds hold a significant proportion of government securities, they are active portfolio managers, so that the government bond market is relatively liquid.

[99]Increased scarcity value for domestic government bonds has led to the SNDO to amortize the SEK 25 billion in foreign currency debt in part to support issue volumes in the domestic market. In addition, refinancing of foreign debt will occur by borrowing in krone and swapping the proceeds into foreign currency, instead of borrowing foreign currency directly. Howver, the outstanding size of government debt denominated in SEK is big enough to handle the needs for collateral for intraday liquidity in RIX.

5.4 Other Issues

Several aspects of issuance and ownership structure of government debt point to the SNDO's concern about liquidity of the secondary market for government securities.[100] Supporting this conjecture, the SNDO plays an active role in the repo market on a daily basis with the *explicit* purpose of managing the daily liquidity in the secondary market for government securities.[101] Both repo and reverse operations are carried out through ADs. While the SNDO refrains from dominating the repo market by setting an upper limit on the repo transactions it conducts, it has the discretion to offer repos above the limit to avoid shortages in the government securities market. In addition, it *guarantees* to offer each AD a repo facility at a pre-fixed price relative to the official repo rate, the operating target of monetary policy.

[100]For example: obligations of ADs on the electronic platform; pension funds and insurance companies holding a large proportion of domestic debt.

[101]The SNDO also issues on tap-bills and borrows or invests in the deposit market for this purpose. Both have an overnight maturity. On tap-bills are sold though ADs; counterparties for deposits are larger in number and include all parties with established investment limits, whether foreign or domestic.

6 United Kingdom

6.1 The Basics

The primary dealership system is being used to sell government securities in the United Kingdom. The Debt Management Office (DMO), established in 1999 carries out the UK Government's debt-management policy with the aim of minimizing long-term cost. It issues gilts (or government bonds), index-linked bonds and treasury bills.[102] Currently, there are 16 primary dealers for gilts, all of whom are resident in UK in terms of operating out of an office in London. The list of primary dealers for treasury bills, however, is not publically announced; hence their number is unknown. *Eligibility* criteria for the primary dealers includes:

- authorized by the Financial services Authority;
- membership of the Central Gilts Office payments system and recognized investment exchange;
- demonstrated viable business strategy, adequate capital, management and operational resources.

Within the framework of the primary dealer model, government securities are issued through competitive auctions with the following features:

- uniform price auctions are used for indexed-linked bonds and tap auctions,[103] and discriminatory price auctions for the rest;
- institutions other than primary dealers, can also bid in the auctions;
- bidding is done by telephone by the primary dealers, and through a paper application form by the rest of the bidders;[104]
- for gilts, the entire issue amount may not be alloted in case the auction is covered only at an unacceptably deep discount to the prevailing market yield;[105]

[102] The composition, by instruments issued, of the outstanding government debt in 2002, was: 76% gilts, 22% index-linked gilts, and 2% treasury bills.

[103] Tap (reverse tap) auctions are done under condition of temporary excess demand (supply) of a particular government security.

[104] Electronic primary issuance is a topic being currently debated. The key argument in its favour are the possibility of increased participation through: increased price transparency if the clearing price is revealed as the auction progresses; and the possibility of direct access to a wider set of market participants. However, given that customers currently prefer passing auction execution risk to the primary dealer, the DMO is of the view that it is questionable whether electronic primary issuance will increase participation.

[105] The unsold stock of securities in an auction is not available to the market for a period of *at least* ten days to a maximum of a month, at a price below the lowest accepted price in the auction.

- allotment could be denied to an individual successful bidder if it appears that the bidder would hold more than 25% of the amount on offer in the auction, net of the bidder's short position in the when-issued market;

- non-competitive bids are allowed.[106]

See Table 10 for a summary of these key features of the UK primary dealer system.

Table 10: **Quick Facts: United Kingdom**

Feature	**Characteristic**
PD model	Yes
# of PDs:	
→ *Gilts*	16
→ *Index-linked bonds*	6
→ *Treasury bills*	unknown
Auction Type:	
→ *Index-linked bonds, tap auctions*	uniform
→ *rest*	discriminatory
Non-competitive Bids	yes
Provision for Auction Coverage	yes (minimum bid obligation)
Institution Responsible for Auctions	DMO
Objectives of Debt Management	cost
Govt Securities as Collateral for Credit	65-75% (repo) 100% (overnight repo)

6.2 Obligations and Advantages of Primary Dealers

An important distinction is made between the implementation of the primary-dealership system for treasury bills and gilts. Given the nature of the gilt market, where the average trade size is large but trades are relatively infrequent,[107] the primary dealership model is viewed as a system of committed liquidity providers who bridge the gap between demand and supply in the secondary market. In other words, the primary dealer model focuses on the *secondary* market for gilts. For ***gilts***, the key obligations imposed on primary dealers are

[106] A bidder can submit a non-competitive bid as a single bid amount, with a minimum and maximum specified by the DMO.

[107] The investor composition of the secondary market reveals that between 66-75% of the outstanding gilts are in the hands of UK insurance companies and pension funds, principally "buy and hold" investors who prefer long-dated maturities. Under one-fifth of gilts were owned by overseas investors. ***Recently***, the UK insurance industry has undergone a series of reforms to its regulatory and accounting environment, which has the potential of pension funds moving more funds into gilts, compared with the current situation where 67% of it's total assets are held in equities.

- to participate competitively in auctions in line with their share of secondary market trading;[108]
- mandatory quote requirements on the electronic inter-primary dealer market that was introduced by the DMO in early 2002.[109]

For gilts, the key advantages given to primary dealers are:

- preferred access to primary issuance;[110]
- exclusive access to these IDB screens and the right to strip and reconstitute gilts.

For ***treasury bills***, obligations and advantages are given *exclusively* in the primary market, which makes insurance against the risk of auction execution, the key motive of the treasury bill primary dealer model. Consequently, primary dealers are *not* expected to make markets for treasury bills.[111] The key obligation for treasury bills is:

- Bid ***regularly*** at treasury bill and all adhoc tenders.[112]

The key advantage for treasury bills:

- *Exclusive* acess to the DMO's ad hoc tenders conducted to *assist* the Bank of England in its management of the sterling money market.

6.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

The introduction of CAHPS sterling, a real-time, gross settlement system has led to an increase in the demand for intraday liquidity. Intraday liquidity can be accessed through two channels: open market operations of overnight maturity conducted by the Bank of England for monetary policy implementation,[113] and

[108] A quantitative measure is not given other than indicating that the secondary market share should be economically significant.

[109] Quote obligations require primary dealers to provide firm maximum quote spreads for minimum trade sizes, in a specified number of bonds, throughout the trading day, with the obligation suspended between 5 minutes before and 10 minutes after a major news event. Each primary dealer can provide the mandatory quotes to any of the three DMO-endorsed IDB electronic platforms: Cantor Fitzgerald, Garban-Icap and Dowgate.

[110] This is accomplished in a number of different ways: exclusive access to unlimited telephone bidding until the auction deadline, while other bidders have to submit a single bid through an application form delivered in person or post; ***exclusive*** access to index-linked gilt auctions, switch auctions, reverse auctions and tap auctions; a larger maximum amount for non-competitive bid.

[111] An explanation for this is the size of the treasury bill issuance program: as mentioned previously, only 2% of the outstanding government debt in 2002 comprised of treasury bills.

[112] Adhoc tenders could be for T-bills, repo or reverse repo operations.

[113] Three rounds of open market operations are held daily. While the first two are accessible by all open market operations counterparties, the last round is accessible only to open market operations counterparties with settlement accounts at the Bank of Engalnd.

collateralized, interest-free overdrafts on settlement accounts held at the Bank of England.[114] The bulk of interday liquidity is provided though open market operations with a maturity longer than overnight. For *all* open market operations organized as repo operations, both gilts and treasury bills belong to the set of assets that can be used as collateral. In repo operations conducted between January 2000 and March 2002, 65-75% of the collateral comprised of gilts.[115] Moreover, the overnight repo round at 3.30 pm is collateralized ***exclusively*** with gilts.

6.4 Other Issues

The separation of the fiscal agent and monetary policy agent role of the Bank of England through the creation of a Debt Management Office has an important implication. Specifically, primary dealer style obligations are imposed on the open market operations counterparties of the Bank of England. These counterparties must have

- an active presence in core sterling money markets;
- an active trading presence with unrelated counterparties on a scale that would allow them to distribute liquidity for the Bank of England;
- provide useful information on a regular basis on market conditions and developments in sterling money markets.

The strong similarities between the criteria used to select primary dealers and open market counterparties suggest that these two groups have substantial overlap.[116]

[114] Except for one, all CHAPS sterling members have a settlement account at the Bank of England.

[115] Open market operations conducted as outright sale of securities involve only the sale of either sterling treasury bills or eligible bank bills and local authority bills.

[116] This cannot be verified because the identity of open market operation counterparties are not publically available.

7 United States of America

7.1 The Basics

The primary dealership system was established by the Federal Reserve in the 1960 for the *explicit* purpose of selecting counterparties for the execution of open market operations to conduct monetary policy. Thus, the role of the primary dealer in the U.S. is primarily that of facilitating the implementation of monetary policy. From 18 primary dealers in 1960, their number grew to a peak of 46 in 1988, but has subsequently declined to 22. Only commercial banking organizations subject to official supervision by U.S. federal bank supervisors or brokers/dealers with the Securities and Exchange Commission, are *eligible* to become primary dealers.[117] Within the framework of the primary dealership system, open market operations are organized as discriminatory price auctions, with typically one operation conducted daily.[118]

The issuance of government securities is the responsibility of the U.S. Treasury, specifically the Bureau of Public Debt; and, it issues treasury bills, notes, index-linked notes, and bonds.[119] The U.S. Treasury does *not* really make use of the primary dealer market to intermediate or distribute government securities. In terms of potential participants, the auction process is very open with primary dealers constituting a subset of the participants. However, *no* special obligations and advantages exist for primary dealers as the U.S. Treasury's debt issuance counterparties. Primary issuance is done through uniform price auctions. Bids may be either competitive or non-competitive, but both methods *cannot* be used by a participant for the same auction. A single non-competitive bid is limited to \$ 1 million per auction for bills and \$ 5 million for coupon issues, and for competitive bids, a bidder is restricted to receiving no more than 35 percent of the total amount of securities available to the public.[120]

Bids can be submitted through three main channels:

- *directly* to the Federal Reserve Bank of NY, and the Bureau of Public Debt;[121]

- *through* eligible depository institutions and dealers, where this group includes primary dealers;[122]

[117] Being subject to regulation requires minimum capital standards of the respective regulator be met.

[118] The most common form of open market operation is a repurchase transaction, with the Fed adding reserve balances on a temporary basis through these transactions, by buying eligible securities, the *bulk* of which are treasury bills and notes.

[119] Notes are fixed-principal securities with maturity of 2, 5, and 10 years. Fixed-principal securities with maturity over 10 years are called notes.

[120] To ensure this, when bidding competitively, a bidder must submit his net long position when the total of its bids in an auction plus the bidder's net long position in the security being auctioned equals or exceeds the net position reporting threshold amount.

[121] They may be submitted electronically through the Treasury Automated Auction Processing System (TAAPS) and by mail.

[122] For bids not submitted for themselves, submitters have to submit a list of customers,

- through *Treasury Direct*, which is a program to buy marketable securities directly from the U.S. government, rather than through a bank or broker.[123]

See Table 11 for key features of debt issuance in the USA.

Table 11: **Quick Facts:USA**

Feature	Characteristic
PD model:	
→*Debt Issuance*	No
→ *OMO*	Yes (18)
Auction Type	uniform
Provision for Auction Coverage	No
Institution Responsible for Auctions	U.S. Treasury
Objectives of Debt Management	cost, participation
Govt Securities as Collateral for Credit	100% (outright transactions, reverse repo) n.a. (rest)

7.2 Obligations and Advantages of Primary Dealers as Open Market Operation Counterparties

A key obligation of primary dealers as open market operation counterparties is meaningful support for the *primary issuance* of US Treasury securities. Under this obligation, the Federal Reserve expects a primary dealer to:

- bid at Treasury auctions "in reasonable relationship to that dealer's scale of operations relative to the market, and in reasonable price relationship to the range of bidding by other auction participants";
- make "reasonably" good markets when dealing with the Fed's open market operations trading desk;
- report weekly on their trading activities, positions in cash, futures, repo transactions in Treasury and other securities, and net long positions in the auction process.

and must distinguish between the submitter's direct customers, as well as, customers of any intermediaries who are forwarding customer bids to the submitter.

[123]The program is intended for investors who buy securities at original issue and hold them until they mature. Participants can bid through Treasury Direct if they hold a Treasury Direct Account. No fees is charged unless the balance on the Treasury Direct account is greater than $100,000. *All* auction rules, including the minimum and maximum that can be bid, apply to bidding through *Treasury Direct*.

The *key and only* advantage of primary dealers is their *exclusive* access to open market operations conducted for monetary policy implementation by the New York Fed. *Exclusive access* to open market operations is an advantage to primary dealers as it gives them access to an *important* source of intraday liquidity in the federal funds market provided by the Federal Reserve, that is not available to other institutions. Prior to 1995, *exclusive access* to open market operations also implied that the primary dealers had information about the change in the monetary policy stance or the federal funds rate ahead of other market participants. This followed from the practice of publically announcing Federal Open Market Committee's (FOMC henceforth) policy decisions with a five-to-eight week lag, but carrying out open market operations to reflect the change in the monetary policy stance, immediately after the FOMC had made it's decision.

7.3 Collateral for Intraday and Interday Credit as a Source of Demand for Government Securities

Collateral required to access intraday liquidity provided by the Federal Reserve is an important source of demand for U.S. Treasury securities. This is especially the case as Fedwire, the Federal Reserve's nationwide wire transfer system, over which depository institutions transfer large-dollar payments, is a real-time gross settlement system. Intraday credit is provided through three channels: open market operations to implement monetary policy conducted as repurchase agreements, collateralized daylight overdrafts on reserve or clearing accounts,[124] and access to discount window lending. While the first is available only to primary dealers, the latter two are available to all institutions which maintain a "reserve account" or a "clearing account" with the Federal Reserve banks.[125] Interday liquidity is provided through open market operations for monetary policy implementation conducted as outright transactions, and discount window lending. The collateral for these operation is:

- open market operations conducted as outright transaction involve buying and selling of only Treasury bills or Treasury coupon securities;
- the bulk of the securities bought in repurchase transactions are treasury bills and notes;
- matched-sale and purchase transactions involve the sale of only treasury bills;[126]

[124] Overdrafts have to be collateralized once they exceed *net debit caps*.

[125] Institutions hold these balances at the Federal Reserve for three reasons: to meet "required reserve" obligations imposed on all depository institutions by the Federal Reserve; to meet clearing balance requirements that arise from the need to settle payments through the *Fedwire*, the real-time-gross-settlement system in the United States; excess reserves, that are held to provide extra protection against overdrafts anddeficiencies in "required reserves".

[126] These operations are similar to reverse repo operations.

- for overdrafts on reserve or clearing accounts and discount window lending, U.S. Treasury securities form a part of the collateral.

7.4 Other Issues

The ownership structure of U.S. Treasury securities reveals a dominating presence of the Federal Reserve as an owner of U.S. Treasury securities.[127] The increase in total public debt by 65% over the period 1992-2000 appears to have led to a further concentration of ownership of U.S. Treasury securities with the Federal Reserve. Thus over the period 1992-2000,

- the share of Federal Reserve and Government accounts in total public debt increased from 30% to 53%;
- the share of foreign and internationally held debt in privately held debt increased from 20% to 40%;
- the share of depository institutions, pension funds, mutual funds, insurance companies and other investors,[128] has stayed relatively constant;
- each of these categories has accounted for a small proportion of privately held debt: pension funds and depository institutions account for 10% each, insurance companies for 3%, and other investors for 18%.

8 References

8.1 Australia

1. AFMA, "The 2002 Australian Financial Markets Report (AFMR)".
2. Allen, M., "CEO's Presentation to INSTO Australian Debt Markets Conference", AOFM, March 2002.
3. Allen, M., "CEO's Presentation to the Finance and Treasury Association", AOFM, April 2002.
4. Allen, M., "The Commonwealth Government Securities Market", AOFM, November 2000.
5. AOFM, "The Australian Government Bond Market", October 2001.
6. BIS, "Payment Systems in Australia", June 1999.
7. Campbell, F., "Reserve Bank Domestic Operations under RTGS", RBA Bulletin, November 1998.

[127] For the Federal Reserve and for foreign and internationally held public debt, holdings of Treasury securities under repurchase agreements is excluded.

[128] "Other investors" includes individuals, government-sponsored enterprises, brokers and dealers, bank personal trusts and estates, corporate and non-corporate business.

8. Campbell, F., "The implementation of Monetary Policy: Domestic Market Operations", May 1997.

9. Carew, E., "How Australia's Fixed Interest Markets Operate", AFMA, December 1995.

10. Commonwealth of Australia, "Terms and Conditions of Issue - Treasury Bonds".

11. Commonwealth of Australia, "Terms and Conditions of Issue - Treasury Indexed Bonds".

12. Commonwealth of Australia, "Terms and Conditions of Issue - Treasury Notes".

13. Farahmand, P., "Debt Management in Australia and New-Zealand", Bank of Canada, 9 May 2000.

14. Harvey, N. and Muller, P., "Operational Implementation of Monetary Policy in Canada: Is There a Better Method?", Bank of Canada, February 2002.

15. McCray, P., "The Australian Government Bond Market", March 2000.

16. RBA, "Payments System Board Annual Report 2002".

17. RBA, "RBA Intra-day Repo Facility using Bank Instruments", Information Paper.

18. RBA, "Reserve Bank Board Report and Financial Statements 2002".

19. RBA, "Statement on the Conduct of Monetary Policy", August 1996.

20. RBA, "The Role of Exchange Settlement Accounts", RBA Bulletin, March 1999.

21. Australian Financial Markets Association (AFMA) – http://www.afma.com.au/

22. Australian Office of Financial Management (AOFM) – http://www.aofm.gov.au/

23. Australian Stock Exchange (ASX) – http://www.asx.com.au/

24. Reserve Bank of Australia (RBA) – http://www.rba.gov.au/

25. Department of the Treasury – http://www.treasury.gov.au/

26. Australian Payments Clearing Association (APCA) – http://www.apca.com.au/

8.2 Eurosystem

1. Ayuso, J. and Repullo, R., Why did the banks overbid? An empirical model of fixed rate tenders of the European central Bank. Journal of International Money and Finance 20, 2001, pp. 857-870.
2. Blenck, D., Hasko, H., Hilton, S., and K. Masaki, The main features of the monetary policy frameworks of the Bank of Japan, the Federal Reserve and the Eurosystem. BIS working paper, December 2001.
3. Borio, C.E.V., A hundred ways to skin a cat: comparing monetary policy operating procedures in the United States, Japan and the euro area. BIS working paper, December 2001.
4. ECB Blue Book, June 2001.
5. Ewerhart, C., A model of the Eurosystem's operational framework for monetary policy implementation. ECB Working Paper No. 197, November 2002.
6. Nyborg, K.G., Bindseil, U. and Ilya A. Strebulaev, Bidding and performance in repo auctions: evidence from ECB open market operations. ECB Working Paper No. 157, July 2002.
7. The Single Monetary Policy in the Euro Area, European Central bank, April 2002.
8. The Single Monetray Policy in Stage Three, European Central Bank, January 1997.
9. http://www.ecb.int/

8.3 France

1. Agence France Tresor, Monthly Bulletins, April 2002
2. Agence France Tresor, 2001 Annual Review, 16 pages.
3. Agence France Tresor, presentations, March 2001 and March 2003
4. http://www.francetresor.gouv.fr/oat/us/indexus.cgi

8.4 Germany

1. The market for German Federal securities, May 2000, Deutsche Bundesbank.
2. http://www.bondmarkets.com/Research/ecommerce/MTSGermanMkt.shtml
3. http://deutsche-boerse.com/INTERNET/EXCHANGE/index_e.htm
4. http://www.deutsche-finanzagentur.de/eng/

5. http://www.bundesbank.de/kredit/index.en.php

6. http://www.bundesbank.de/gm/index.en.php

8.5 Ireland

1. Bond issuance procedures and related debt management arrangements, including the primary dealer system. Statement by National Treasury Management Agency.

2. Operation of the bond market under the primary dealership system. NTMA, February 2002.

3. http://www.ntma.ie/index.html

4. http://www.ise.ie

8.6 Italy

1. Guidelines of the Public Debt Management for 2001-2002 and 2002-2003, Public Debt Management Office, Department of Treasury.

2. Methodology for calculation of the secondary market evaluation parameters, Jan 1, 2002 - Dec 31, 2003 period. Ministry of Economy and Finance, Department of Treasury - Division 2.

3. Specialists in Government Bonds, Jan 1, 2002 - December 31, 2003 period. Ministry of Economy and Finance, Department of Treasury - Division 2.

4. Strategic Guidelines of the Public Debt Management, Public Debt Management Office, Department of Treasury.

5. The Italian Treasury Securities Market: Overview and Recent Developments. Public Debt Management Office, Department of Treasury, March 3, 2000.

6. http://www.mtsspa.it

7. http://www.tesoro.it/web/english.asp

8. http://www.bancaditalia.it

8.7 Japan

1. Bank of Japan Annual Review 2002.

2. Endo, Tadashi. A 25-Year History of the Bond Market in Japan. International Finance Corporation-World Bank Group.

3. Guide to Japanese Government Bonds 1999, Ministry of Finance, Japanese Governm

4. Securities Market in Japan, Japan Securities Research Institute, p. 65 -108.

5. Inoue, Hirotaka, 1997. The Structure of Government Securities Markets in G10 Countries: Euro-Currency Standing Committee.

6. Increasing use of electronic trading systems and its implications on Japanese financial markets. Market Policies Group, Financial Markets Department, Bank of Japan, July 2001.

7. Ishiga, K., Okada, Y. and Takeshi Kato, February 2003. The Bank of Japan's eligible collateral framework and recently accepted collateral. Market Review, Bank of Japan.

8. Japanese Government Bonds, Quarterly Newsletter of the Ministry of Finance of Japan, January 2002, October 2002, January 2003.

9. Olivei, G.P., 2002. Japan's Approach to Monetary Policy. New England Economic Review, 39-43.

10. The Role of the Bank of Japan in Payment and Settlement Systems, Bank of Japan Quarterly Bulletin, November 2002.

11. BIS Papers No 9, Comparing monetray policy operating procedures across Japan and the euro area, December 2001.

12. Securities Market in Japan, Japan Securities Research Institute, p. 65 -108.

13. http://www.boj.or.jp/en/

14. http://www.mof.go.jp/english/jgb-e.htm

8.8 New Zealand

1. Archer, D., Brookes, A., and Reddell, M., "A Cash Rate System for Implementing Monetary Policy", RBNZ Bulletin, Vol. 62, No.1, February 1999.

2. Austraclear New Zealand, "Operating Guidelines", September 2001.

3. Brookes, A., "Monetary Policy and the Reserve Bank Balance Sheet", RBNZ Bulletin, Vol. 62, No.4, December 1999.

4. Brookes, A., and Hampton, T., "The Official Cash Rate One Year on", RBNZ Bulletin, Vol. 63, No.2, June 2000.

5. Farahmand, P., "Debt Management in Australia and New-Zealand", BoC, May 2000. Financial Markets Department, "Monetary Policy Implementation Section: Operating Rules and Guidelines", RBNZ, April 2001.

6. Hampton, T., "Intra-day Liquidity and Real-Time Gross Settlement - 18 Months On", RBNZ Bulletin, Vol. 62, No. 4, December 1999.

7. Hayward, T., McKenzie, P., and Potter, W., "Managing New Zealand's Foreign Reserves", RBNZ Bulletin, Vol. 65, No. 4, December 2002.

8. Horman, G., "Public Debt Management in New Zealand", NZDMO, October 2002. Ledingham, P., Rodgers, A., and Stinson, A., "Recent Developments in the Payment System", RBNZ Bulletin, Vol. 63, No. 4, December 2000.

9. NZDMO, "Institutional Arrangements of Government Debt Management in New-Zealand", June 1993.

10. NZDMO, "New Zealand Government Bonds - Information Memorandum", October 1999.

11. NZDMO, "New Zealand Government Inflation-Indexed Bonds - Information Memorandum", October 1999.

12. NZDMO, "New Zealand Government Treasury Bills - Information Memorandum", October 1999.

13. RBNZ, "Monetary Policy Implementation: Changes to Operating Procedures", RBNZ Bulletin, Vol. 62, No.1, February 1999.

14. RBNZ, "Monetary Policy Implementation and Signalling: Discussion Document", March 1997.

15. RBNZ, "Monetary Policy Implementation and Signalling: Review of Submissions and Decision", June 1997.

16. RBNZ, "Payment and Settlement Systems in New Zealand", February 2002.

17. RBNZ, "The Evolution of Monetary Policy Implementation".

18. Wheeler, G., "New Zealand' Experience with Autonomous Sovereign Debt Management", NZDMO, November 1996.

19. White, B., "Central Banking: Back to the Future", RBNZ, Discussion Paper, September 2001.

20. Whittingham, Miles, "Visit by Reserve Bank of New Zealand - to Discuss OpenLink and Reserve Management Issues", March 2003.

21. http://www.nzdmo.govt.nz/

22. http://www.rbnz.govt.nz/

8.9 Spain

http://www.mineco.es/tesoro/htm/deuda/index_en.htm

8.10 Sweden

1. Agreement with Authorized Dealer of Swedish Government Bonds
2. Agreement with Authorized Dealer of Government Bonds in Swedish Kronor with an Index Clause ("Inflation-Linked Bonds")
3. Agreement with Authorized Dealer of Swedish Treasury Bills
4. Government Debt Management in Sweden, Swedish National Debt Office Feb 28, 2002
5. Government Debt Management in Sweden, A Country Case Study for the IMF and the World Bank project on Guidelines for Public Debt Management, revised draft, February 2002
6. Information on eligibility requirements for collateral in RIX and in monetary policy instruments, Sveriges Riksbank, Operational Analysis Division, February 2002
7. Riksbank counterparties in the money- and bond market.
8. Settlement of payments in the RIX system, SEK and euro, www.riksbank.com/upload/4294/Rik_eng.pdf
9. The Future payment system in Sweden, from Sveriges Riksbank, Financial Stability Report I/ 2002, pp. 49-57
10. Rules and regulations for settlement of payments in RIX, Sveriges Riksbank, June 2001
11. The Swedish Financial Market 2001, Sveriges Riksbank, 2002.
12. OECD Debt Markets: Trends and Recent Changes, 2002
13. Sweden's Approach to Monetary Policy, Jane Sneddon Little, New England Economic Review, Second Quarter 2002, pp 51-55.
14. Riksbank website, http://www.riksbank.com.
15. The SAXESS trading system, http://www.stockholmsborsen.se/handelsinfo/index.asp?lank=1&lang=eng
16. Swedish Debt Office webpage, http://www.rgk.se/

8.11 UK

1. DMO proposal on Secondary Market for Gilts: Progress Report 2. September 2001.
2. DMO Annual Review, 2001-2002. U.K. Debt Management Office.
3. Holland, A. The development of alternative trading systems in the UK gilt market: lesson and implications. Bank of Canada conference on Financial Market Structure and Dynamics, November 2001.
4. Operational Notice for the United Kingdom DMO Exchequer Cash Management Operations. Sept 21, 2001.
5. Official Operations in the Gilt-Edged Market: Operational Notice by the UK Debt management office. November 2001.
6. The Debt Management Office's Relationship with the Gilt-Edged Market Makers and Inter-Dealer Brokers: A Description, UK Debt management office. October 1999.
7. The secondary market for gilts: A consultation paper. United Kingdom Debt Management Office, January 2001.
8. The Bank of England's operations in the Sterling Money Market, Bank of England, May 2002.
9. http://www.bankofengland.co.uk/
10. http://www.dmo.gov.uk/mainmenu.htm

8.12 USA

1. Meulendyke, Ann-Marie, 1998, U.S. Monetary Policy and Financial Markets, Federal Reserve Bank of New York.
2. Strategic plan 2000-2005, Bureau of the Public Debt, US Department of the Treasury, September 2000.
3. The Federal Reserve System: Purposes and Functions. Board of Governors of the Federal Reserve System, Washington, D.C., 1994.
4. Treasury Bulletin, Department of Treasury, U.S.A., 2002.
5. Understanding Open Market Operations, Federal Reserve Bank of New York.
6. http://www.federalreserve.gov/paymentsys.htm
7. http://www.federalreserve.gov/pubs/frseries/frseri.htm
8. http://www.ny.frb.org/pihome/addpub/
9. http://www.publicdebt.treas.gov/sec/sectrdir.htm