The Practice of Central Banking in Other Industrialized Countries

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Central banks in larger industrialized countries increasingly favor market operations, the buying and selling of securities, over standing facilities, such as lending and deposit facilities, in conducting their monetary policies. In their market operations, foreign central banks most commonly trade securities issued or guaranteed by their governments and repurchase agreements that are backed by a variety of assets, including private securities and securities denominated in foreign currencies. Some also trade in securities that are issued by other governments or private securities that are guaranteed by governments or financial institutions. In some cases, these securities may be denominated in foreign currencies.

Repurchase agreements (RPs) have come to account for most of the market operations of these central banks in recent years and represent an increasing share of their assets.[1] This greater use of RPs partly reflects their growing importance in financial markets and partly reflects their ability to limit central banks' credit, liquidity, and interest rate risks as they expand their market operations to more assets and agents.

In most of the larger industrialized countries, the ratio of government debt to GDP has been falling, in a few cases to unusually low levels. This development has encouraged central banks to expand their trading of RPs rather than other, riskier instruments. In anticipation of their impending social security and pension deficits, the governments of some of these countries have considered the merits of issuing more debt than they require in order to maintain a market for their securities.

Table 1
Background Information on Government Finances and Money and Central Bank Assets in Selected Industrialized Countries

	Australia	Canada	Euro-system	Germany	France	Italy	Japan	Norway	Sweden	Switzer-land	United Kingdom
General information on government[a] finances											
Government surplus/deficit (% of GDP, 1999)	1.6	2.8	–1.2	–1.1	–1.8	–1.9	–7.0	4.9	1.9	–.6	1.1
Government structural surplus/deficit (% of potential GDP, 1999)	1.3	2.9	–.7	–.3	–1.5	–.7	–6.0	–2.9[b]	2.1	n.a.	.9
Government net debt (% of GDP, 1999)	13.8	55.3	58.1	47.0	43.0	104.4	37.7	–47.8	13.0	n.a.	38.7
Government gross debt (% of GDP, 1999)	26.2	93.0	75.3	63.5	65.0	116.6	105.3	34.6	68.3	51.4	53.0
General information on money and central bank assets											
M2 (national definition, % of GDP, 1999)	70.6	61.9	67.4	101.3	68.8	235.8	125.7	55.9	45.3	104.0	104.8
Reserve money (% of GDP, 1999)	5.2	4.8	6.4	7.5	3.7	26.2	18.1	7.0	5.2	12.7	4.3
Central bank assets (% of GDP, 1999)	14.0	13.0	19.6	15.3	41.3	68.0	5.9	51.0	18.0	27.0	7.9
Central bank assets (% of government gross debt, 1999)	53.6	13.9	26.0	24.1	63.5	40.8	5.6	147.5	26.4	52.5	14.9

[a] General government.
[b] As a percentage of mainland potential GDP. The financial balances shown exclude revenues from oil production.
n.a. not available.
Source: International Monetary Fund, *International Financial Statistics;* OECD Working Paper No. 168, 1996.

The Sample of Foreign Central Banks

Our survey covers the G-7 countries other than the United States—Canada, France, Germany, Italy, the United Kingdom, and Japan—plus the European Central Bank and the central banks of Australia, Norway, Sweden, and Switzerland. (See Tables 1 and 2 plus the reports for each country.) The current objectives for monetary policy for the central banks of most of the European and the three Commonwealth countries are forms of price stability. The central banks of the Commonwealth countries have a relatively long history of relying on market operations to conduct their policies. The other European central banks and the Japanese central bank relatively recently have begun using market operations more intensively, diminishing their reliance on discount, Lombard, and deposit facilities for managing their supply of base money and for influencing either interest rates or the stock of money. In the past ten years, many of these central banks have gained a greater degree of independence from their governments.

Eligible Assets

The central banks in our survey tend to restrict their list of eligible assets most for their outright purchases. For the purpose of conducting monetary policy, most central banks may purchase securities denominated in their currencies that have been issued or guaranteed by their central government. Some may purchase securities issued by their local governments. Only a few, among them the central banks of Canada and Japan, purchase longer-term government notes and bonds. The Bank of England and the Bank of Japan also may purchase private bills that are guaranteed by the banks that accept them. The Eurosystem

[1] RPs are contracts to sell securities wherein the sellers agree to repurchase the securities at a specified date in the future for a specified price, which equals the original sales price plus interest for the term of the contract. A standard RP contract is one example in a broad class of reverse transactions that includes collateralized lending. The forms that reverse transactions assume are often dictated by the laws and customs that govern the parties to the transaction. For simplicity, the following generally refers to all reverse transactions that are made at market rates of interest as RPs.

can, and the Bank of France and the Bundesbank could, buy high-quality, marketable private securities. Nonetheless, at the end of the 1990s, the Bundesbank held no securities outright, and the Bank of France held only Treasury bills. Since the inception of the European Central Bank (ECB), the Eurosystem of central banks has not purchased securities outright in its refinancing operations.

The balance sheets of the central banks in our sample include longer-term and foreign-exchange assets. Although these positions can represent assets that central banks hold on behalf of their governments, these positions also can represent their own assets. The Eurosystem, the Bank of England, the Bank of Norway, the Bank of Sweden, the Swiss National Bank, and the Reserve Bank of Australia, for example, hold considerable foreign exchange assets, which they manage according to benchmarks set by their respective governing councils and boards. These benchmarks typically dictate their positions in each currency, the average duration of their securities for each currency, the average minimum quality of their credits, and other characteristics of these assets.

The lists of eligible collateral for RPs (including other reverse transactions, which can take the form of sell/buy-back and collateralized loan agreements) tend to be more liberal than those for outright purchases. Some central banks either accept more securities through RPs or are considering doing so as the supplies of their government's securities dwindle relative to their GDP. In some cases, central banks have responded to their counterparties' requests to accept more securities as collateral.

The securities that other central banks accept for RPs are usually relatively liquid, easily valued, and easily cleared through real-time-gross-settlement (RTGS) and delivery-versus-payment (DVP) networks. The experiences of several banks suggest that counterparties tend to offer their less-liquid eligible collateral for RP financing. Foreign central banks accept longer-term government securities as collateral for RPs. In addition to the assets it is willing to purchase outright, the Bank of England recognizes bonds (denominated in either sterling or foreign currencies) issued by its government and the debt of certain government and quasi-government agencies. Before the creation of the ECB, Germany and France both accepted private securities. Australia conducts foreign exchange swaps in U.S. dollars. Canada recognizes mortgage-backed securities that are guaranteed by the government. Sweden also accepts certain mortgage-backed securities and the debt of some foreign governments. Switzerland accepts debt denominated in Swiss francs issued by quasi-government agencies and certain foreign banks.

The ECB recognizes two tiers of collateral. The first comprises marketable debt denominated in euros issued by its members' governments and certain private securities; the second includes additional euro debt and some equities. Currently, about 96 percent of the collateral used by banks in the Eurosystem is in tier one, and the debt of governments and credit institutions each account for almost half of this collateral.

Although most of these central banks formally accept the same collateral for loans as they do for RPs, in emergencies the list of collateral for loans is generally even more liberal. An institution with eligible collateral typically would not choose to pay the penalty of pledging these assets as collateral for emergency loans.

Market Operations and RPs

During the 1990s, most of the banks in this survey began to execute much of their monetary policy through market operations in RPs. The Bank of Canada has used RPs since the 1950s. But the Bank of England, the Bank of Japan, the Swiss National Bank, the Bank of Sweden, and the Bundesbank greatly expanded their use of RPs only in the past decade.

Since the inception of the ECB, the Eurosystem's refinancing operations in reverse transactions have accounted for most of the growth of its assets. In these operations, the Eurosystem provides funds against collateral at a rate of interest that is determined by auction. Most of these reverse transactions take the form of collateralized loans with an enforceable security interest against pools of assets available to the national central banks; the transfer of ownership of specific securities occurs less often.[2]

Although the Eurosystem maintains a marginal lending (Lombard) facility and a deposit facility in order to set a ceiling and a floor for the overnight rate, these facilities have not yet played a significant role in the conduct of monetary policy. Since June 2000, the ECB has set its lending rate 1 percentage point above and its deposit rate 1 percentage point below the mini-

[2] "Depending on both jurisdiction and national operating systems, national central banks allow for the pooling of underlying assets and/or require the earmarking of assets used in each individual transaction." (European Central Bank 2000, section 6.4.2, pp. 43–45. See also section 3.1.1, p. 14.)

Table 2
Foreign Central Banks' Approach to Monetary Policy

	Australia	Canada	Euro-system	Pre-ECB Germany	Pre-ECB France	Pre-ECB Italy	Japan	Norway	Sweden	Switzer-land	United Kingdom
General information on monetary policy											
Intermediate monetary policy target	π	π	π, M3	M3	*e*, M	*e*	diverse	π	π	π	π
Operating target: market interest rates	O/N	O/N	short-term	short-term	short-term	O/N	O/N	short-term	O/N	short-term	short-term
Reserve requirements	no	no	yes	yes	yes	yes	yes	no	yes [a]	yes	no
Frequency of market operations	≈1 × d	1 × d	1 × w	1 × w	2 × w	1 × w	>1 × d	≈1 × d	>1 × w	≈1 × d	≈2 × d
Standing facilities											
Type of facilities	MC, MF	MC, MF	MC, MF	MC, BM	MC	MC, BM	MC	MC, MF	MC, MF	MC	MC, MF
Frequency of use	MC occa-sional, MF active	occa-sional	occa-sional	MC rare, BM active	rare	active	very rare	MC rare	occasional	rare	occasional
Characteristics of outright purchases											
Underlying securities allowed								[b]			
i. Public sector's liabilities	CG only	CG only	yes	yes	yes	yes	yes		yes	yes	yes
ii. Private sector's liabilities	no	no	yes	yes	yes	no	yes		yes	yes	bills only
iii. Foreign liabilities	no	no	no	no	no	no	no		yes	yes [d]	yes [c]
Type of securities most frequently used for outright purchases	i. (CG)	i. (CG)	[f]	[e]	i. (CG)	i. (CG)	i. (CG)		i. (CG)	[g]	i. (CG)
Characteristics of repos											
Use of repos in market operations	dominant	dominant	dominant	dominant	dominant	dominant	dominant	exclusive [h]	exclusive [s]	dominant	dominant
Underlying securities allowed											
i. Public sector's liabilities	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
ii. Private sector's liabilities	no	yes	yes	yes	yes	no	yes	yes	yes	yes	yes
iii. Foreign liabilities	yes	no	no	yes [j]	no	no	no	yes	yes [j]	yes [k]	yes
Characteristics of repos											
Type of securities most frequently used for repos	i. (CG)	i.	i., ii.	i., ii	i., ii.	i. (CG)	i., ii.	i., ii., iii.	i., ii.	i., ii., iii.	i., ii., iii.
Initial maturity of contracts	14 days [o]	1 day	14 days & 3 months [n]	14 days	7 days [l]	14 days	7 days to 6 months [m]	12 days to 14 days	7 days	O/N to 3 weeks [p]	14 days
Counterparties: Banks (B), Securities Houses (SH), Money Market dealers (MM)	B, SH MM	B, SH	B	B	B	B, SH, MM	B, SH, MM	B	B, SH	B	B, SH, MM

(Table 2 continued)

Foreign Central Banks' Approach to Monetary Policy

	Australia	Canada	Euro-system	Pre-ECB Germany	Pre-ECB France	Pre-ECB Italy	Japan	Norway	Sweden	Switzer-land	United Kingdom
(Characteristics of repos continued)											
Margining practices											
Mark to market	daily	daily	yes [q]	no	no	no	daily	no	daily	daily	daily
Margin call	yes	yes	yes	no	no	no	yes	no	yes	yes	yes
Initial haircut	yes	yes	yes	no	yes	no	yes	yes	yes	no	yes
Composition of central bank assets (as a percentage of total assets) [r]											
gold, international reserves, and other foreign assets	64.0	5.0	48.5	33.7	56.6	35.1	4.5	83.0	71.0	67.0	22.0
securities held outright	8.3	88.0	10.2	0	3.0	45.5	67.0	4.0	11.0	2.8	18.0
loans and repos	25.9	7.0	31.0	62.4	21.2	13.6	26.0	11.0	17.0	26.8	57.0
other domestic assets (including fixed assets)	1.8	—	10.3	3.9	19.2	5.8	2.5	2.0	1.0	3.4	3.0
Memo item: government deposits as a percentage of total liabilities	26.5	< 1.0	7.1	< 1.0	7.0	15.5	12.1	27.7	< 1.0	16.0	1.2

Key to symbols

π = inflation	MC = market ceiling rate (the technical form of this standing facility is usually a fixed-term loan)
e = exchange rate	MF = market floor rate (the technical form of this standing facility is a deposit)
O/N = overnight	BM = below market rate (the technical form of this standing facility is usually a rediscount)
CG = central government liabilities	LG = local government liabilities

[a] Reserve requirements are currently set to zero.
[b] The Norges Bank does not use outright purchases of securities as a monetary policy instrument.
[c] Liabilities must be sterling denominated.
[d] Must be denominated in Swiss Francs.
[e] The Bundesbank conducted outright purchases of very limited significance.
[f] To date, the European System of Central Banks has not conducted outright purchases.
[g] The Swiss National Bank conducts outright purchases of very limited significance.
[h] Norges Bank uses fixed-term loans against full collateral as the main instrument to supply liquidity.
[i] Limited to exchange rate swaps, and rarely used.
[j] The Riksbank accepts OECD countries' securities with an external credit rating of single A or higher—so far for intraday and overnight credit only.
[k] Liabilities are mostly denominated in Swiss francs.
[l] For repos on a tender basis. The maturity of repos at market prices is 5 to 10 days.
[m] In 2000, the average maturity was 50 days.
[n] The maturity is 14 days for main refinancing operations, and 3 months for longer-term refinancing operations.
[o] Average maturity.
[p] In 2000, the average maturity was 9 days.
[q] Frequency varies across countries from daily to weekly.
[r] End of 1999 except United Kingdom (Feb 2000), Canada, Japan, Australia, Sweden (May 2000), France, Germany (end of 1997), and Italy (end of 1998).
[s] To provide liquidity to the banking sector only. The Riksbank issues debt certificates when a structural liquidity surplus exists.

mum bid rate announced for its main refinancing operation. Throughout this period, the overnight interbank rate, as measured by Eonia (Euro OverNight Index Average), has remained within the corridor defined by the lending and deposit rates, often within one-half of a percentage point of the minimum bid rate.[3] Most of the other central banks also provide lending and deposit facilities that define corridors for their policy rates—facilities, like those for the Eurosystem, that are seldom used.

As money markets developed, market operations became more efficient than standing facilities for the execution of monetary policy, and, in turn, central banks' market operations could cultivate financial markets. In this context, RPs suit the efficient execution of policy. RPs allow central banks to limit their risks, adjust the terms of their transactions (amount, maturity, frequency, and tender system) to match market conditions, trade with more counterparties, and expand the assets backing market operations, which is especially appealing when the supply of short-term government securities is insufficient. Because RPs allow central banks to limit their risks as they expand their range of eligible assets, they also mitigate the need for these banks to define, manage, and maintain their capital or valuation reserves.

Foreign central banks do not regard RPs as being as risky as the outright purchases of the collateral that backs the agreements. Most RPs mature within a week or two. A few banks accept RPs with longer maturities, ranging up to three months. For example, the Eurosystem currently purchases two-week reverse agreements at its weekly main refinancing operations to supply about two-thirds of the base money that it adds to the banking system. It supplies much of the remainder through three-month reverse agreements in its monthly long-term refinancing operations.[4] Most central banks mark the collateral that backs their RPs to market daily and require their counterparties to post additional collateral as required. Most also impose margin requirements (haircuts) that reflect the volatility of the market values of each type of collateral. All central banks require their counterparties to meet capital requirements and satisfy acceptable credit standards. Some banks limit their exposure to a counterparty according to the amount of its capital. For most central banks, eligible counterparties include commercial banks, securities houses, and money market dealers. Although, by statute, the Eurosystem can recognize only institutions subject to its minimum reserve requirement as eligible counterparties for its refinancing operations, securities houses and dealers that are affiliated with banks may participate indirectly in auctions through their affiliates.

The central banks' increasing use of RPs, their choice of eligible collateral, the terms under which they accept this collateral, and their choice of counterparties depend very much on the prevailing settlement systems. For those assets that are covered by efficient RTGS and DVP systems, the simultaneous settlement of the securities and cash legs of transactions minimizes credit risks, while permitting timely and economical market operations. In principle, all financial institutions that participate in these RTGS and DVP systems can become potential counterparties for the central banks' market operations. Although the collateral requirements of RTGS and DVP systems absorb securities, thereby tending to increase central banks' incentives for expanding their lists of eligible collateral, in some countries, a portion of the collateral held in these settlement systems can be released for overnight RPs with central banks.

Maintaining the Supply of Government Debt

The governments of Sweden, Canada, and Australia recognize some merit in continuing to issue government debt, even beyond their current budget requirements, in order to maintain a continuous and dependable market for their debt.[5] By maintaining their supply of debt, they also would relieve their cen-

[3] Eonia is a weighted average of the interest rates on all overnight, unsecured transactions for a panel of major financial institutions in the euro area. Eonia has come close to the marginal lending rate on some occasions and equaled the marginal lending rate on April 17, 2001.

[4] Reverse transactions accounted for less than one-third of all the base money supplied by the Eurosystem at the end of the third quarter. Claims on non-euro-area residents in foreign countries (primarily foreign exchange reserves), gold, and gold receivables accounted for almost one-half of the supply of base money. Unless the Eurosystem begins buying a sufficient quantity of securities outright, however, the share of base money that it provides through reverse transactions will continue to increase with time. In the United Kingdom, for example, RPs represented about 85 percent of the assets of the Issue Department of the Bank of England last year; Treasury bills, the remainder (Bank of England 2000). The assets of the Bank's Issue and Banking Departments were nearly equal. As the Issue Department continues to grow relative to the Banking Department, a greater share of the United Kingdom's base money will be backed by RPs and bills.

[5] Although most of the countries in our sample expect to achieve budgets that reduce their public debt relative to their GDP during the coming two decades, after this interval, their rising pension and social security obligations could entail substantial budget deficits.

tral banks from relying so greatly on other sources of collateral as they, instead of their central banks, acquired private and foreign assets. None of these countries, however, has issued otherwise unneeded debt for this purpose. Sweden has managed the structure of its government's liabilities, both by maturity and by currency, in a manner to promote the liquidity of its kroner debt.

In Norway, the government both holds substantial financial assets and has a gross public debt nearly equal to one-quarter of its GDP. Norway's government has run substantial surpluses as a result of its oil revenues, much of which it has retained in its State Petroleum Fund and invested abroad. Because the remainder of its budget has been in deficit, Norway's public debt has fallen only slightly relative to its GDP recently.

References

Aspetberger, A. 1996. "Open Market Operations in EU Countries." European Monetary Institute, Staff Paper, No. 3 (May).

Bank of England. 2000. *Annual Report*.

Bank for International Settlements. 1999. "Implications of Repo Markets for Central Banks." Committee on the Global Financial System (CGFS) Publications No. 10 (March).

Bisignano, Joseph. 1996. "Varieties of Monetary Policy Operating Procedures: Balancing Monetary Objectives with Market Efficiency." Bank for International Settlements, Working Papers No. 35 (July).

Borio, Claudio E. V. 1997. "Monetary Policy Operating Procedures in Industrial Countries." Bank for International Settlements, Working Papers, No. 40 (March).

_____. 1997. "The Implementation of Monetary Policies in Industrial Countries: A Survey." Bank for International Settlements, Economic Papers No. 47 (July).

European Central Bank. 2000. "The Single Monetary Policy in Stage Three" (November).