"Liquidity" and "Payment and Settlement Systems"

Charts

November 26, 2008

Some Examples Bearing on "Liquidity"

Example 1

In the financial markets in the United States after the failure of Lehman Brothers Holdings Inc., money market mutual funds (MMFs) and hedge funds faced rapidly increasing requests for redemption by investors and, due to the resulting liquidity constraints, became reluctant to invest in CP. As a consequence, CP issuance dropped precipitously and corporate finances came under increasing stress.

Example 2

In the Japanese government securities (JGSs) market since this spring, intraday volatility in the Japanese government bonds futures market has increased amid declining turnover. Such impairment of market liquidity in the JGS market is manifested, for example, in the unhinging of the usual relations that exist between the cash and futures markets. Consequently, market participants are facing difficulties in properly hedging against interest rate risk.

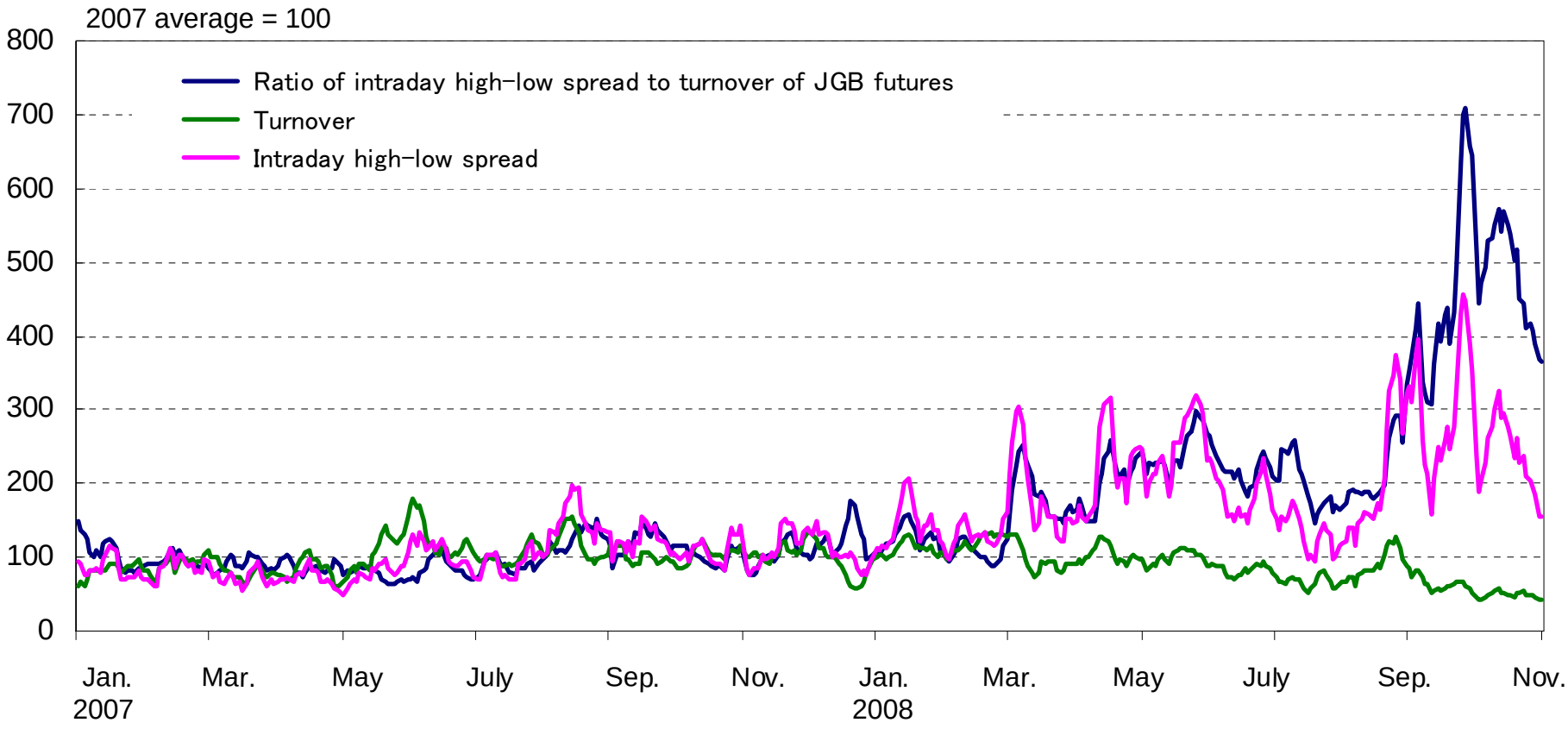
Example 3

Among factors cited as related to the subprime mortgage crisis in the summer of last year were that the low volatility of asset prices has been sustained, and that the markets, quick absorption of the stresses in the recent past produced positive feedback between the boosted confidence in risk assessments among market participants and the rise in asset prices.

Chart 2

Liquidity in the JGB Market

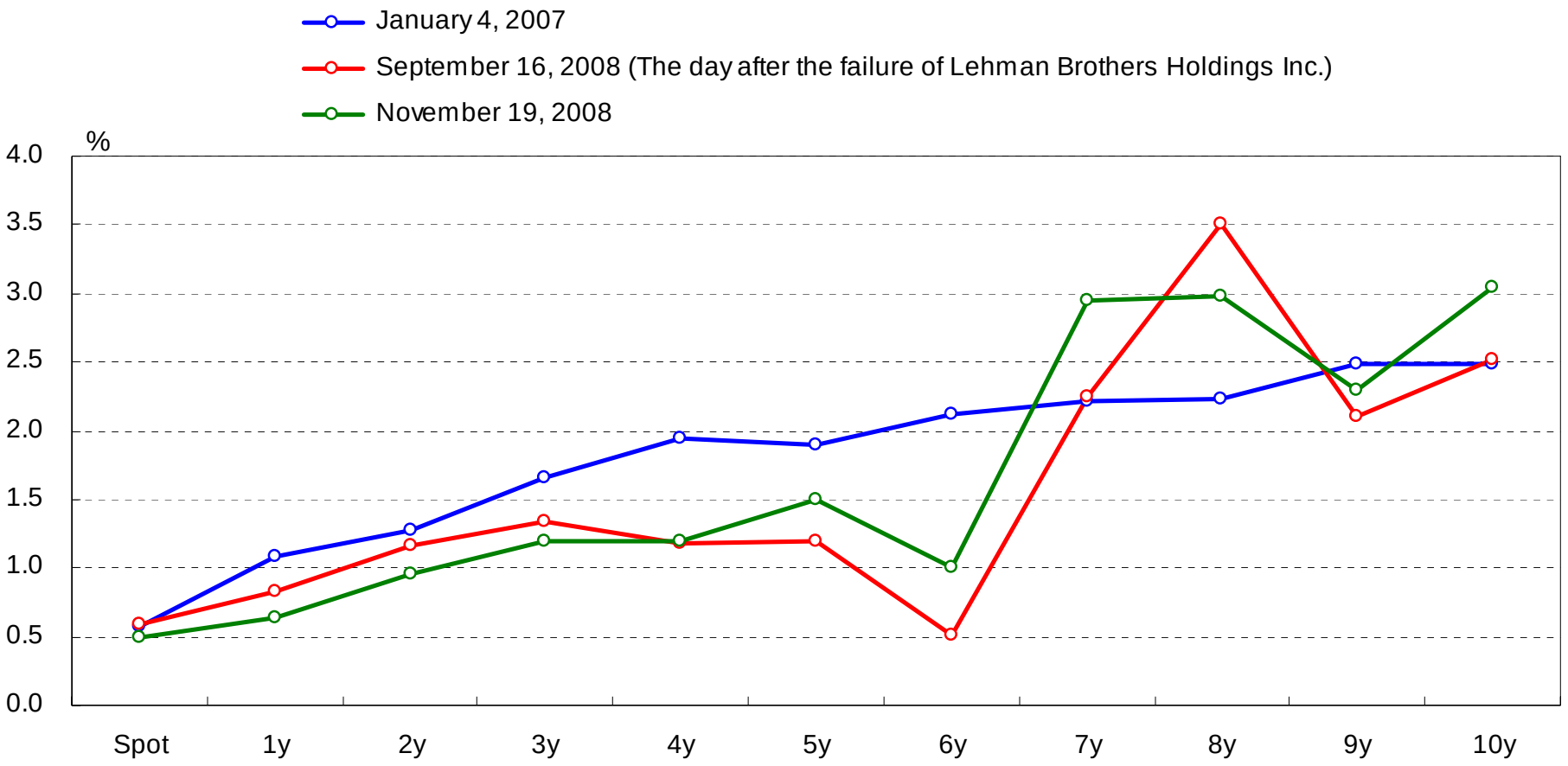
Ratio of intraday high-low spread to turnover of JGB futures
(a higher ratio indicates lower liquidity)



Sources: Bloomberg, QUICK.

Chart 3

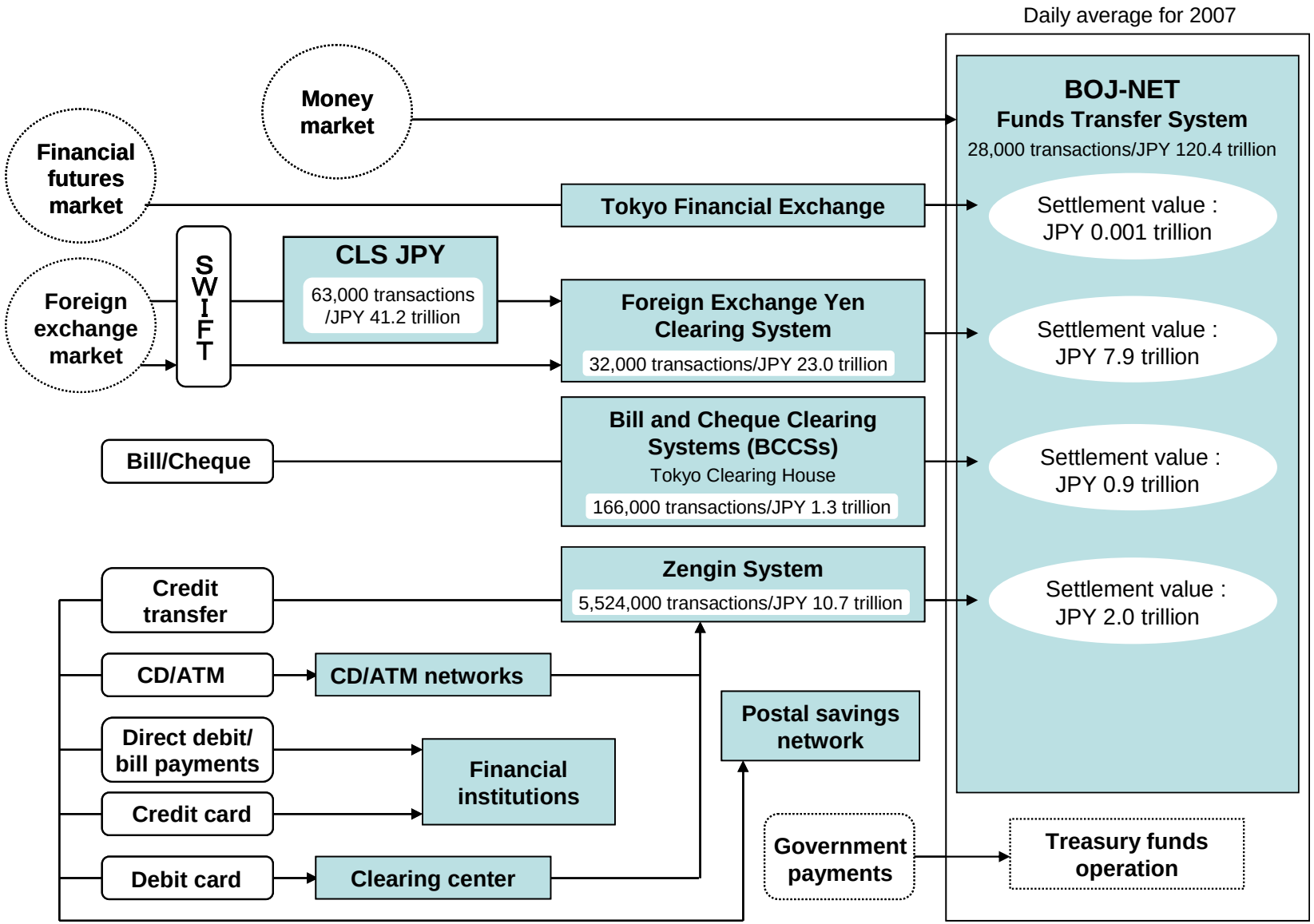
Yield Curve
(1-Year Forward Rate)



Sources: Japan Securities Dealers Association, Bank of Japan.

Chart 4

Payment System in Japan

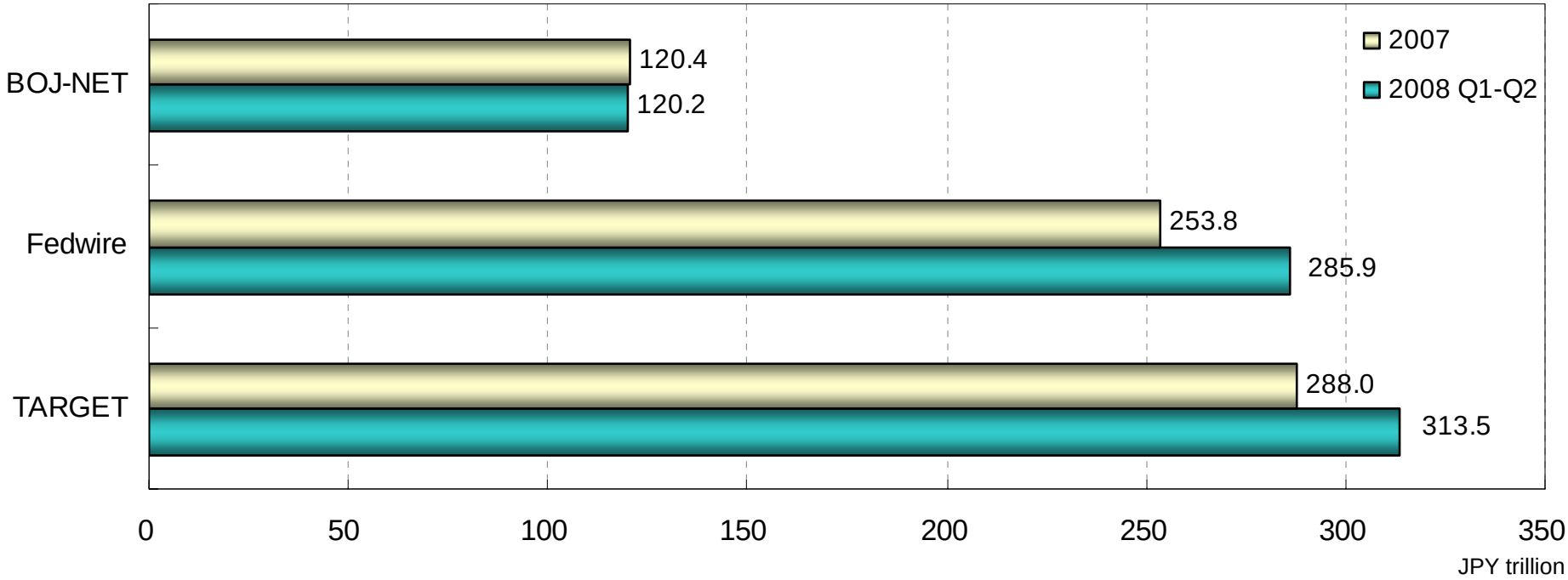


Source: Bank of Japan.

Chart 5

Value Settled in BOJ-NET, Fedwire, and TARGET

(Daily Average)



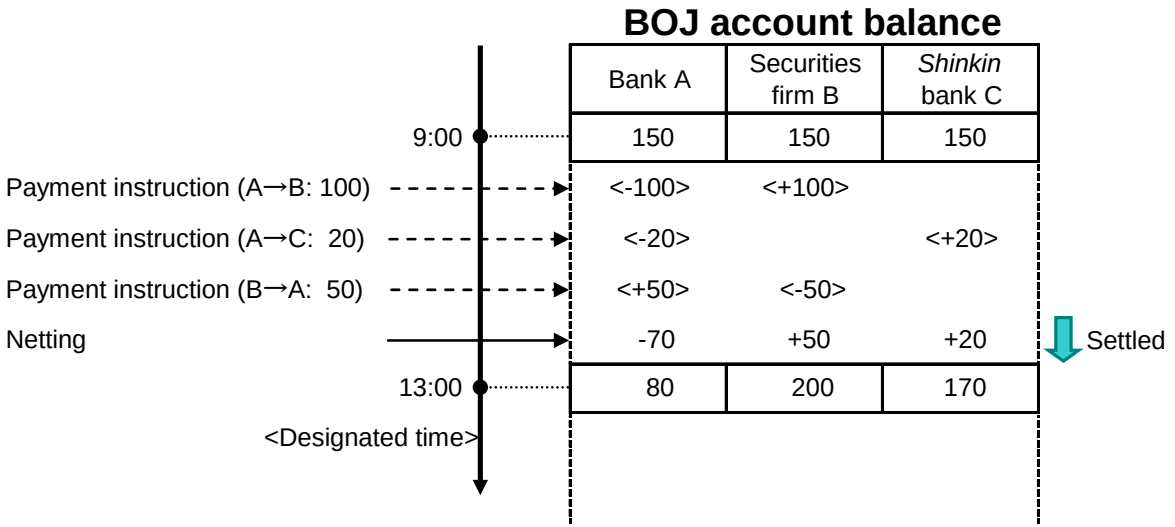
Note: All figures are converted into JPY at recent foreign exchange rates.

Sources: Bank of Japan, Federal Reserve, and European Central Bank.

DNS and RTGS

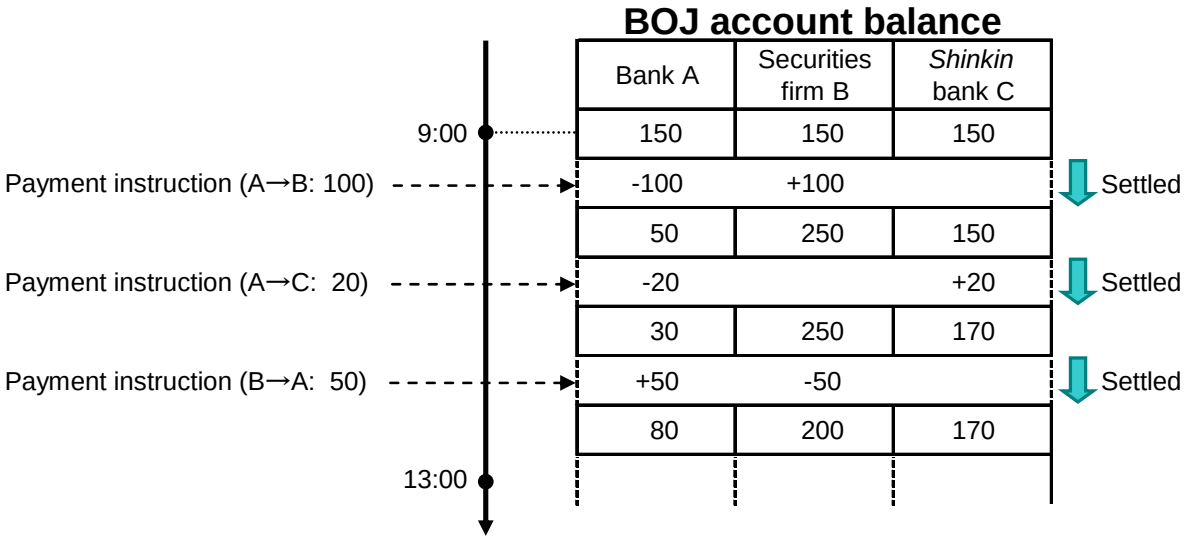
Payment systems with DNS

Under DNS, payment instructions received from financial institutions are pooled until net positions of participating financial institutions are calculated. These positions are settled at a pre-specified time during the day.



Payment systems with RTGS

Under RTGS, payment instructions are settled individually upon receipt on a gross value basis.

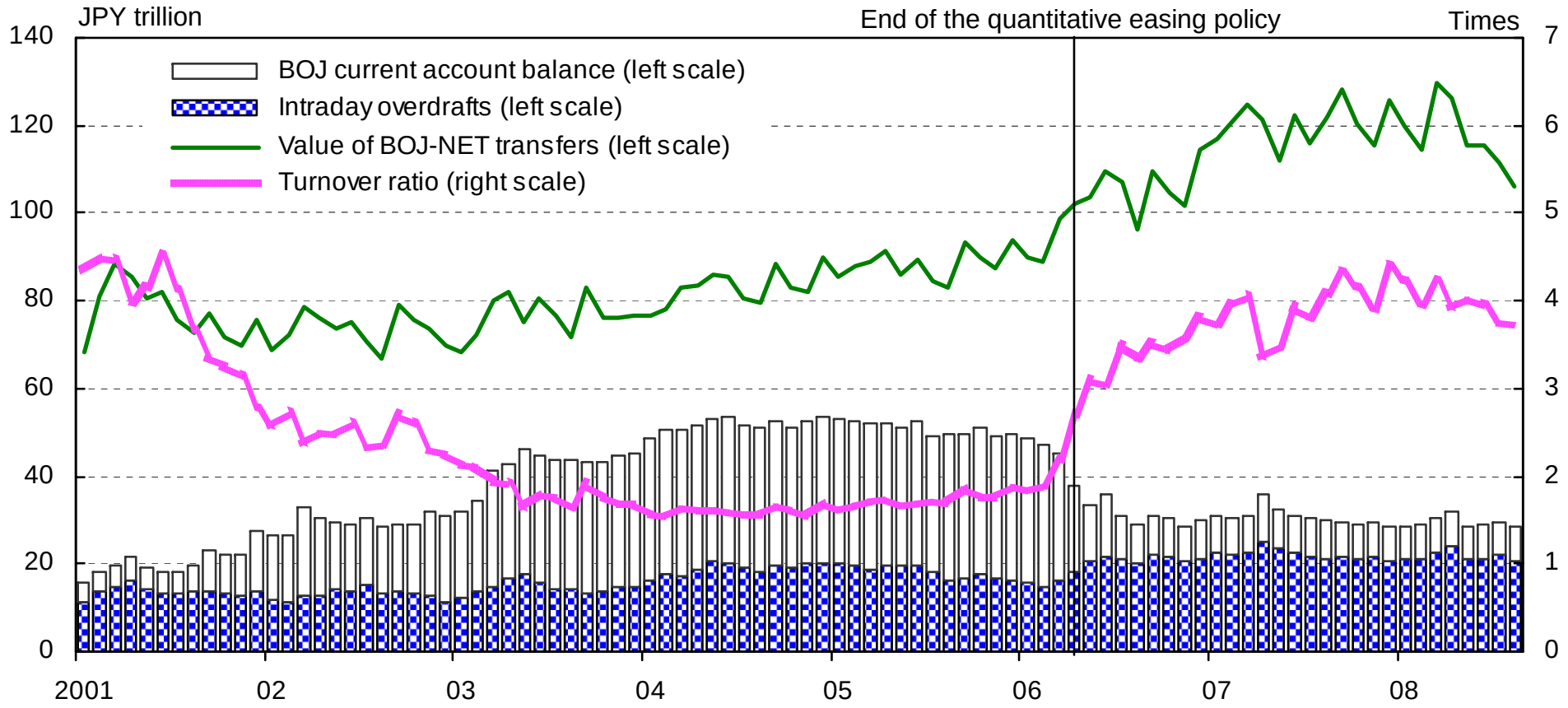


Source: Bank of Japan.

Chart 7

Value Settled and Liquidity Available for Settlement

(Daily Average)

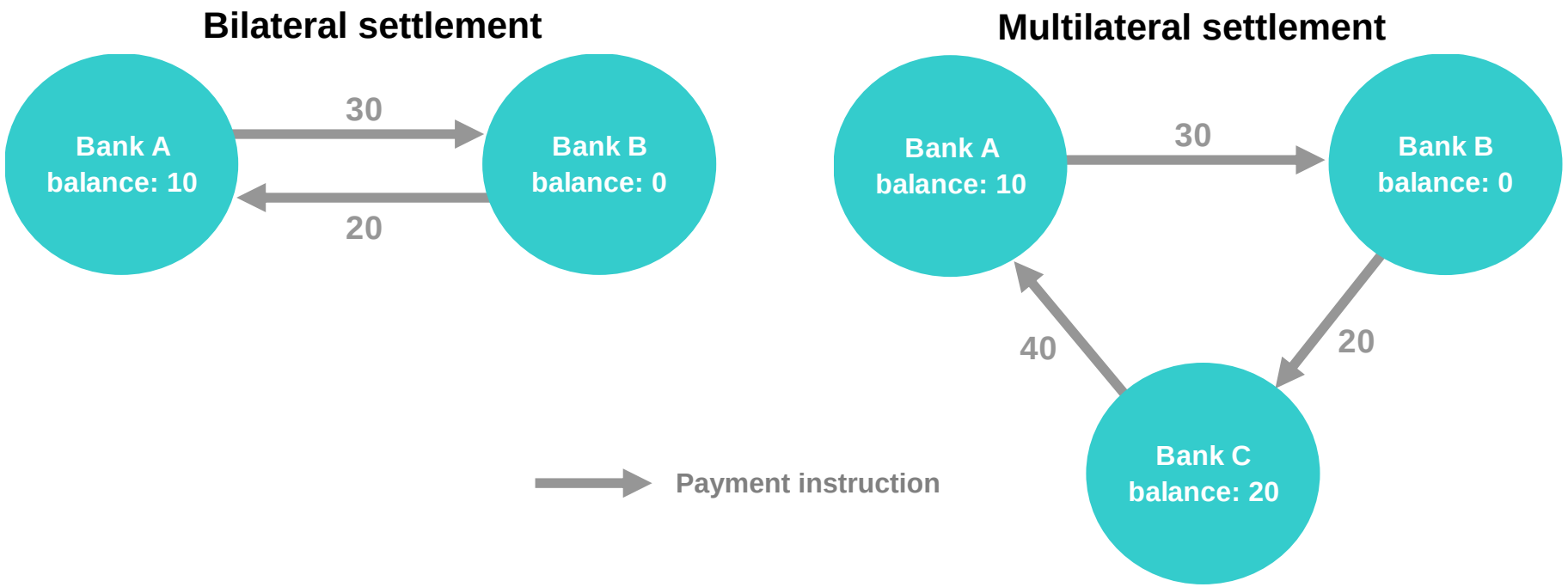


Note: The turnover ratio is calculated by dividing the value of BOJ-NET transfers by the total amount of liquidity available for settlement, which is the sum of BOJ current account balance and intraday overdrafts.

Source: Bank of Japan.

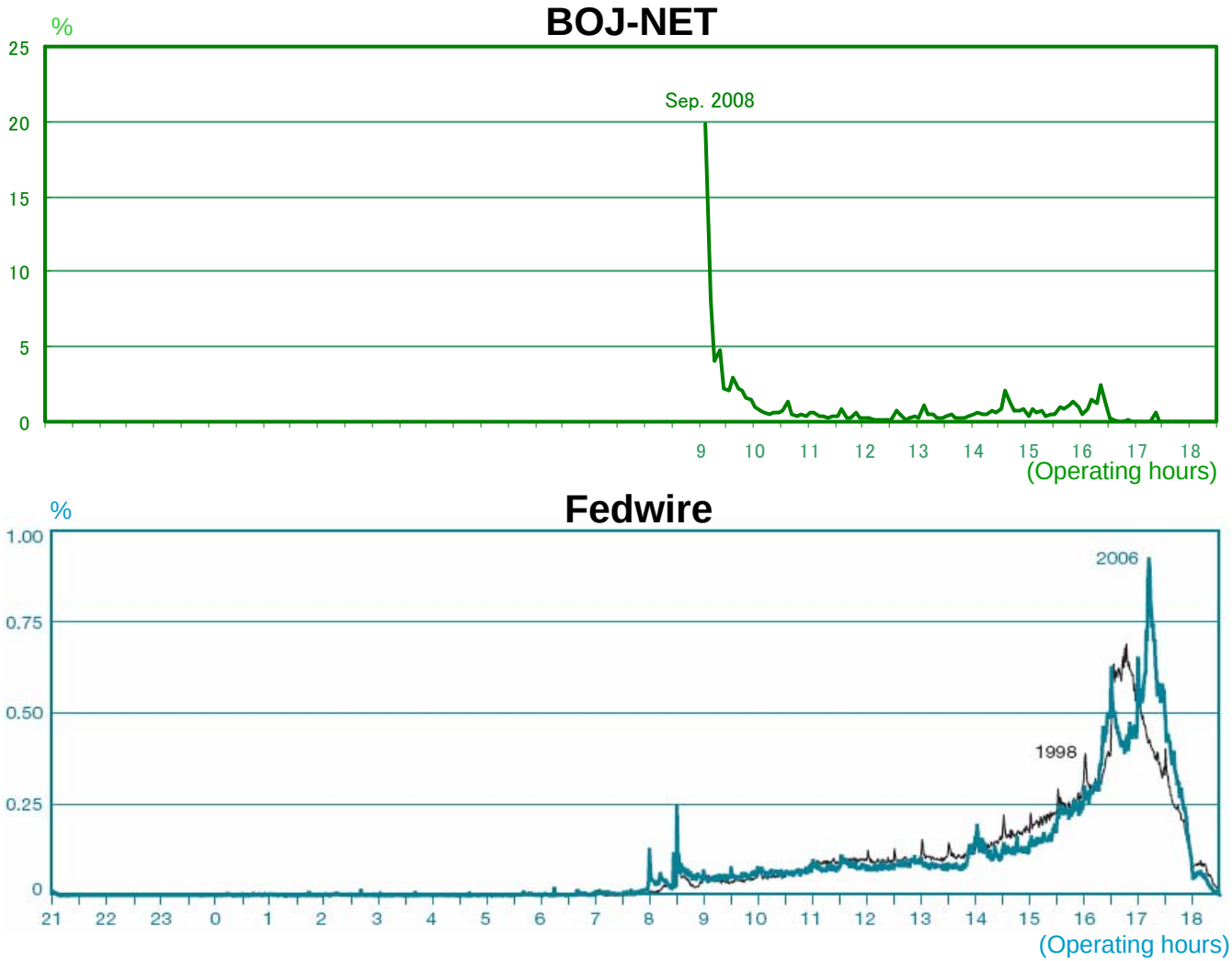
Gridlock in the Former RTGS

If a bank does not have a sufficient balance in its BOJ current account for its payment instructions to be settled, gridlock will occur.



Source: Bank of Japan.

Distribution of Value Settled during Operating Hours

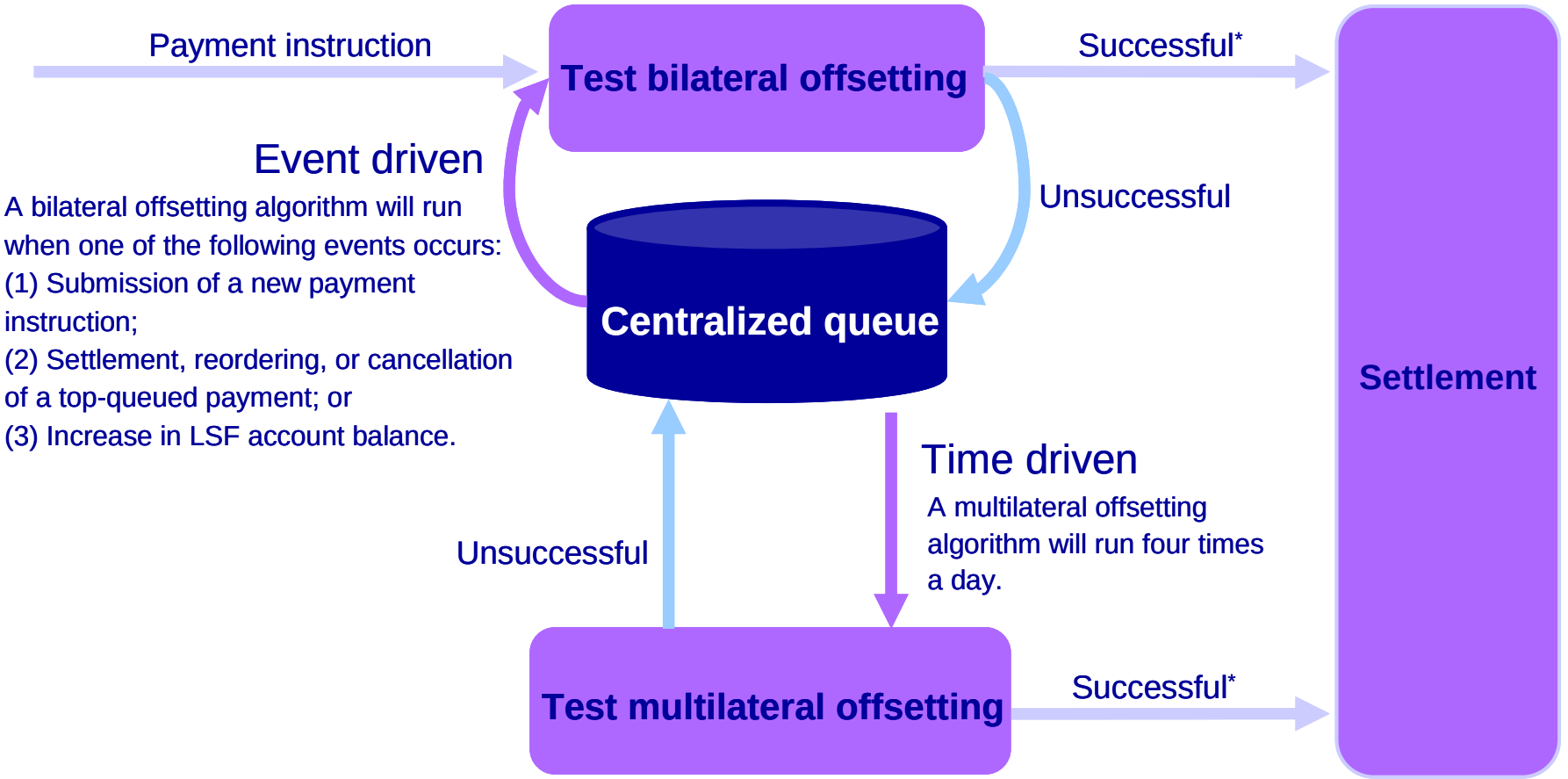


Daily percentage of total value of payments in BOJ-NET settled in each five-minute period

Daily percentage of total value of payments in Fedwire settled each minute

Sources: Bank of Japan, "Changes in the Timing Distribution of Fedwire Funds Transfers," *Economic Policy Review*, Federal Reserve Bank of New York, 14 (2), 2008.

Outline of RTGS-XG

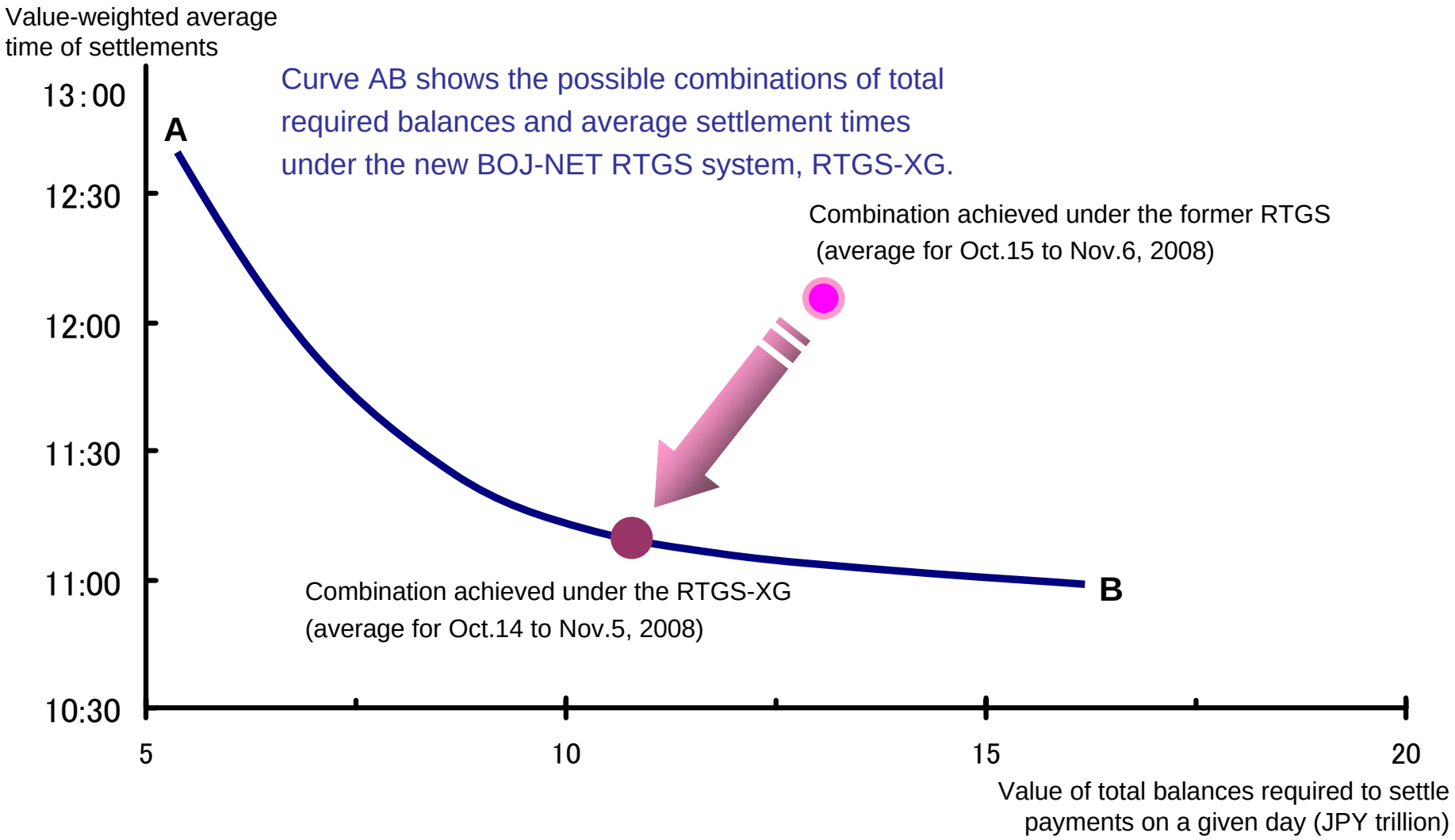


* Including simple gross settlement.

Source: Bank of Japan.

Chart 11

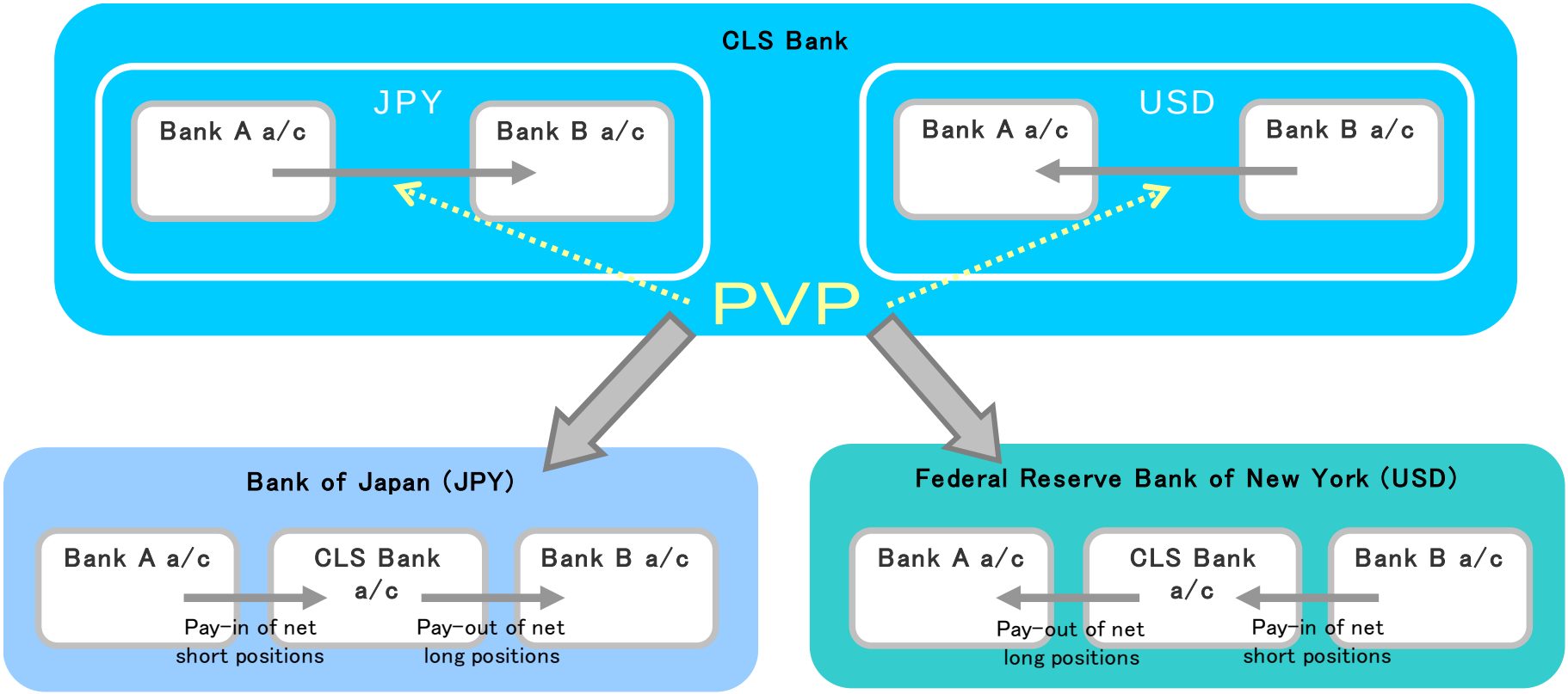
Average Settlement Times and Total Required Liquidity under the RTGS-XG



Source: Bank of Japan.

Chart 12

Outline of CLS (An Example of JPY / USD Settlement)



After the pay-in of USD from Bank B is confirmed, the pay-out of JPY to Bank B is executed.

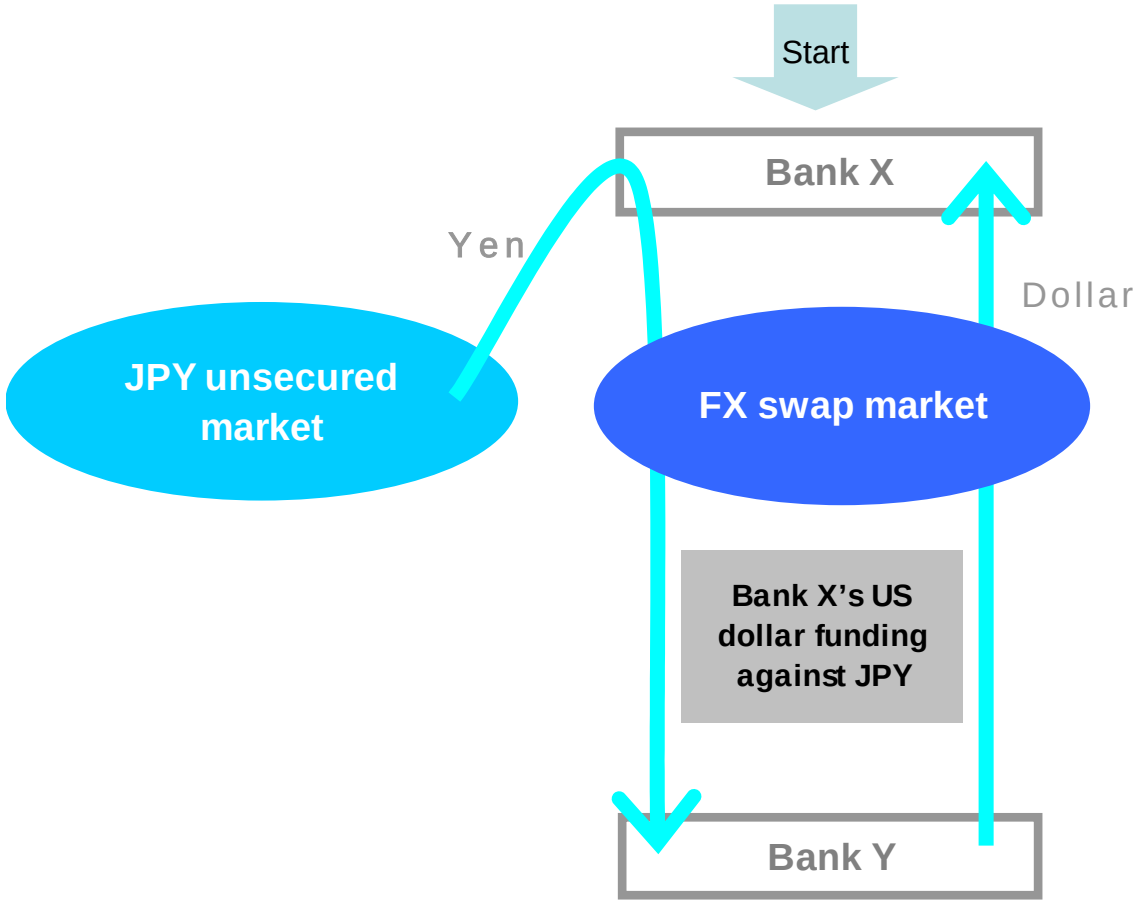
After the pay-in of JPY from Bank A is confirmed, the pay-out of USD to Bank A is executed.

Source: Bank of Japan.

Chart 13

Outline of FX Swap Transaction

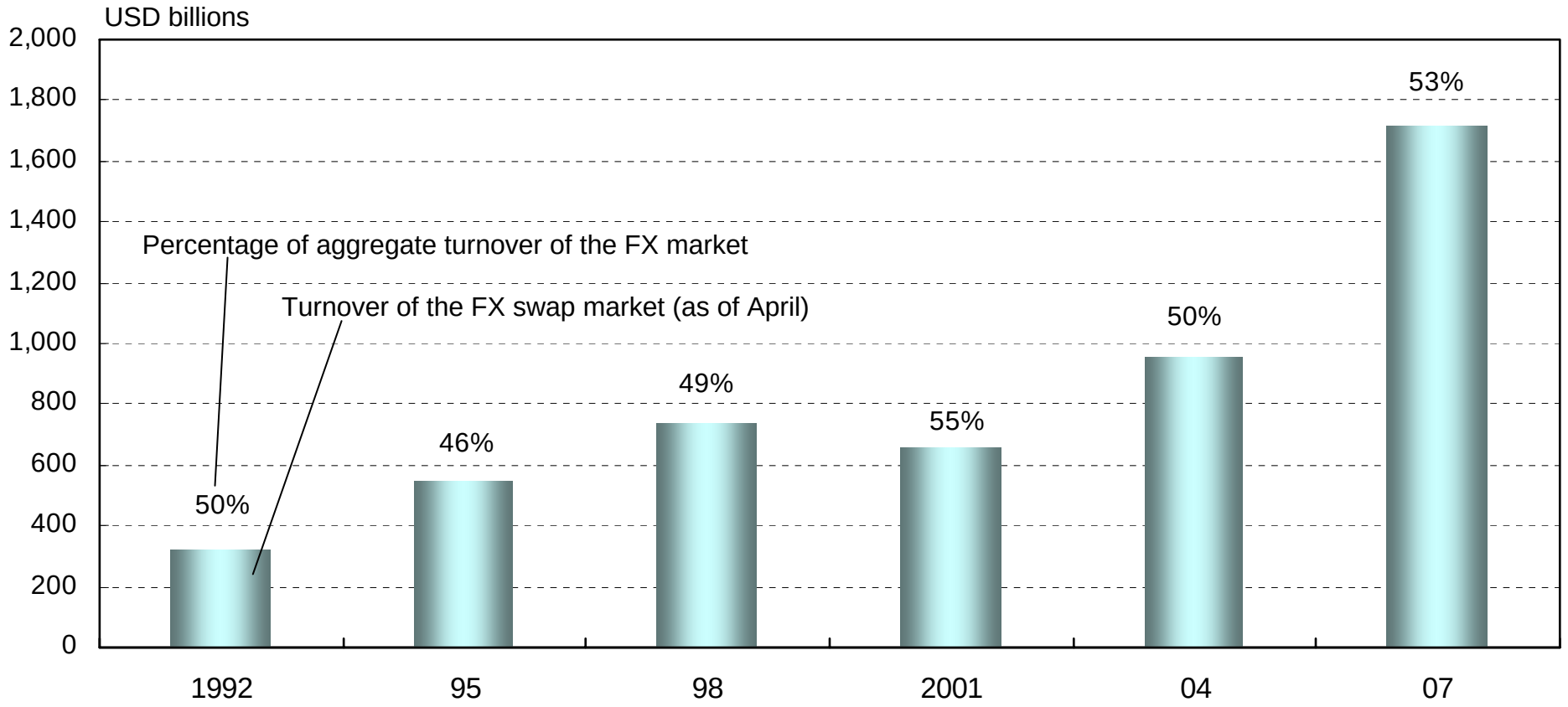
A foreign exchange swap is a transaction where, for example, contracts on a spot purchase of USD against JPY and a forward sale of JPY against USD are agreed simultaneously, which can be regarded as USD borrowing with JPY collateral (e.g., the foreign exchange rate risk is hedged by a forward sale).



Source: Bank of Japan.

Chart 14

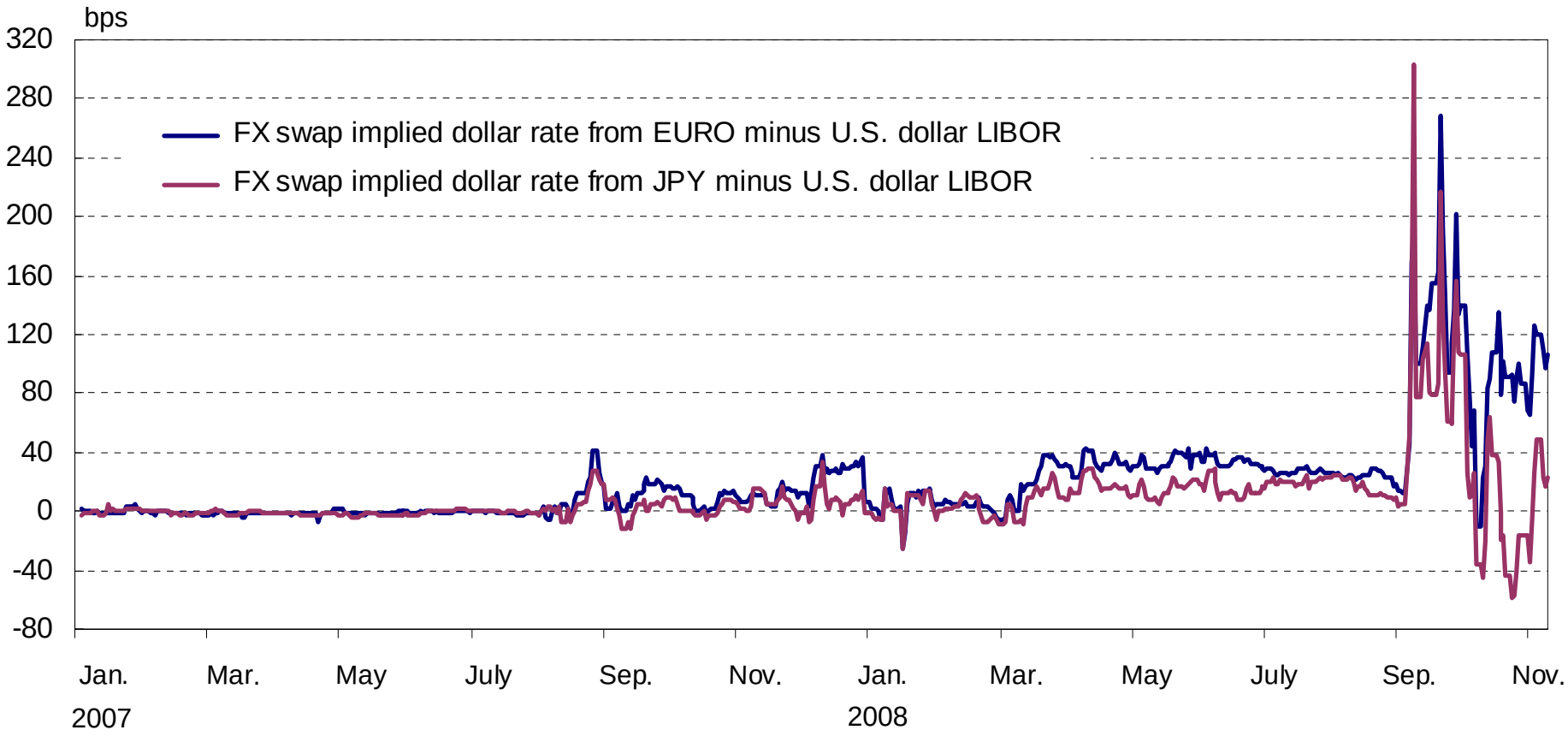
Turnover of the FX Swap Market



Source: *Triennial Central Bank Survey, Foreign Exchange and Derivatives Market Activity in 2007,* December 2007, Bank for International Settlements.

Chart 15

U.S. Dollar Funding Premia in FX Swap Markets



Source: Bloomberg.

U.S. Dollar Funds-Supplying Operations

Outline of U.S. Dollar Funds-Supplying Operations against Pooled Collateral by the Bank of Japan

* USD funds supplied against pooled collateral pledged by financial institutions to the Bank of Japan.

The Maximum Aggregate Amount of Swap Agreement with the Federal Reserve

USD billions

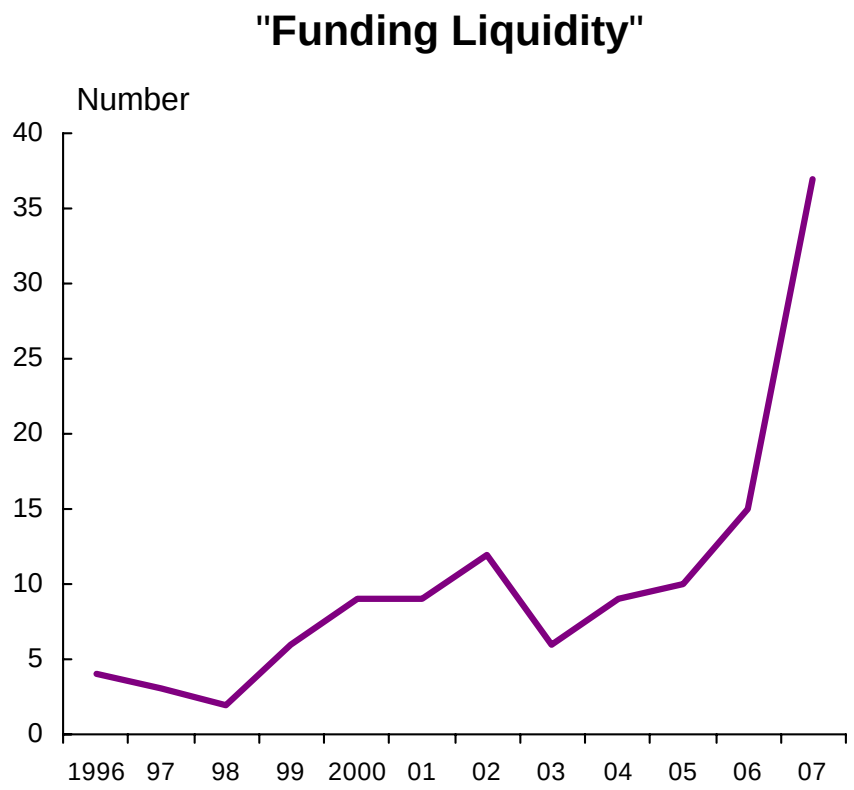
	Actions taken previously	Actions taken on September 18-26	Actions taken on September 29	Total	Actions taken on October 13/14
European Central Bank	55	65	120	240	The swap lines were lifted in exchange for the introduction of U.S. dollar funds-operations whereby funds are provided at a fixed rate set forth for each operation for unlimited amount against pooled collateral.
Swiss National Bank	12	18	30	60	
Bank of Japan	—	60	60	120	
Bank of England	—	40	40	80	
Bank of Canada	—	10	20	30	
Reserve Bank of Australia	—	10	20	30	
Sveriges Riksbank	—	10	20	30	
Danmarks Nationalbank	—	5	10	15	
Norges Bank	—	5	10	15	
Total	67	223	330	620	

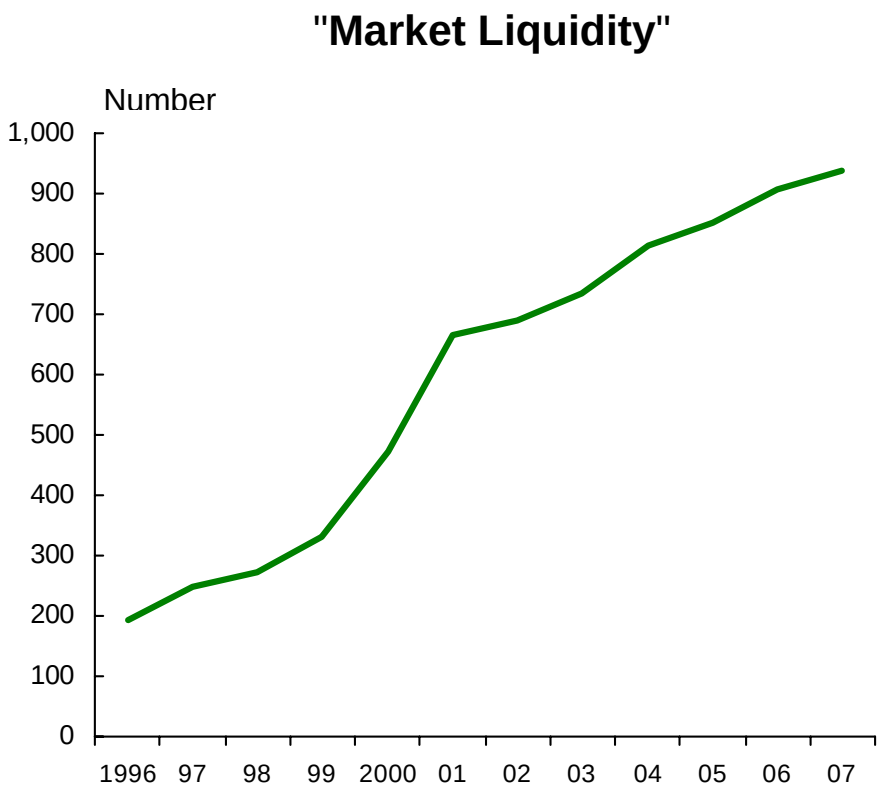
Note: On October 28/29, the Federal Reserve, the Reserve Bank of New Zealand, the Banco Central do Brasil, the Banco de Mexico, the Bank of Korea, and the Monetary Authority of Singapore entered into swap agreements, amounting to US$15 billion for the Reserve Bank of New Zealand, and to US$30 billion each for others.

Source: Bank of Japan.

Chart 17

Number of Academic Papers on "Liquidity"





Note: The number of academic papers issued on "Funding Liquidity" and "Market Liquidity," respectively.
Based on "Google Scholar," as of November 20, 2008.

Source: Google Scholar.