

Recent Developments in Non-Bank Financial Intermediation and Initiatives to Enhance Its Resilience

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Non-Bank Financial Intermediation (NBFI) accounts for about half of global financial assets and plays a pivotal role in financial intermediation activities. Recent observations have indicated a marked shift in the composition of NBFI, with a notable increase in the presence of investment funds, contrasting with the traditional composition of NBFI, which comprises insurance corporations and pension funds. The interconnectedness between banks and NBFI is also viewed to be increasing, mainly through increases in their cross-border transactions. Consequently, there has been a rise in cases where responses of NBFI, particularly investment funds, have been considered as contributing to the amplification of financial stresses, leading to heightened financial market volatility. In view of the potential for such stresses to propagate throughout the global financial system, including the banking sector, a series of policy recommendations have been issued by the Financial Stability Board (FSB) to contain vulnerabilities of NBFI. This article presents an overview of NBFI's financial intermediation, summarizes policy initiatives designed to enhance its resilience, and provides perspectives on issues surrounding NBFI through a review of the FSB's regular issue of the "Global Monitoring Report on Non-Bank Financial Intermediation" and its policy recommendations.

Introduction

Non-Bank Financial Intermediation (NBFI) is a general term used to describe financial institutions that do not fall under the category of deposit-taking institutions

(banks), central banks, or public financial institutions. It encompasses a wide range of subsectors, including insurance corporations, pension funds, investment funds, finance companies, and broker-dealers (Chart 1). NBFI functions to complement the financial intermediation through the banking sector by providing specialized financial products and services such as pensions, insurance, or investment trusts.

NBFI facilitates financial intermediation in conjunction with the banking sector, and the NBFI sector's global asset holdings is on a rising trend. While a number of NBFI engage actively in liquidity transformation, maturity transformation, or leveraged investment, there are cases in which a specific economic action by NBFI amplifies or originates stresses in the financial markets, or leads to significant losses to other financial institutions, including the banking sector.¹ These stresses have the potential to be disseminated to the entire global financial system via fund transactions with banks, investments in securities, and risk transfers. To ensure the stability of the financial system, it is essential to work on enhancing the resilience of NBFI while understanding its vulnerabilities and the interconnectedness with the banking sector.

While many NBFIs operate internationally, "Global Monitoring Report on Non-Bank Financial

[Chart 1] Major NBFI

Subsector		Definition in this article
Insurance corporations		Financial institutions that offer insurance services and invest premiums they collect
Pension funds		Financial intermediaries that invest funds established for pensions and lump-sum retirement benefits
Finance companies		Financial institutions that procure funds by methods other than deposits and invest them in loans to individuals, sales finance, leasing, etc.
Broker-dealers		Financial institutions whose principal business is the brokering, underwriting, and trading of financial products
Investment funds	MMFs/MRFs	Fund management entities that raise funds by issuing securities and return investment income to investors. Investment funds in which the issuer guarantees the repurchase of securities at any time are called open-ended funds.
	Hedge funds	
	OIFs	

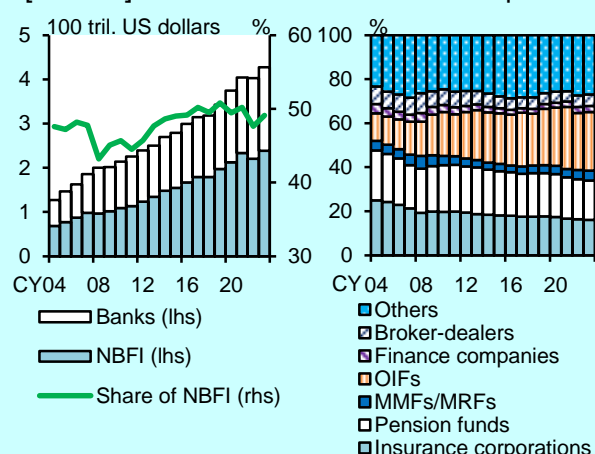
Note: "OIFs" includes investment funds other than MMFs/MRFs and hedge funds.

Intermediation (GMR)" of the Financial Stability Board (FSB) monitors their activities. GMR has been published since 2012 by a FSB working group of approximately 30 jurisdictions and international organizations, including Japan.^{2,3} It contributes to the comprehensive assessment of the NBFI's global activities, by providing a summary of its financial assets, liabilities, vulnerabilities, and interconnectedness with the banking sector. The report is based on the flow of fund accounts and business statistics in each jurisdiction. This article introduces an overview of the current state of financial intermediation by NBFI, based on recent years' issues of GMR and the aggregation within Japan. Moreover, it outlines the points to be noted on risk management and monitoring exercise of NBFI activities, with reference to the policy recommendations of the FSB.

Financial Intermediation and Asset Holdings of NBFI

The amount outstanding of the NBFI sector's global financial assets has been on a growing trend since the global financial crisis (GFC), when its growth pace slowed in the face of bankruptcies and business model changes among broker-dealers and insurance corporations in the US.⁴ The share of NBFI in total financial assets has remained at around 50%, which has been surpassing the banking sector (Chart 2). FSB (2024)⁵ points out that underlying drivers for NBFI growth include rising valuations of their assets and post-GFC reforms of financial regulations.

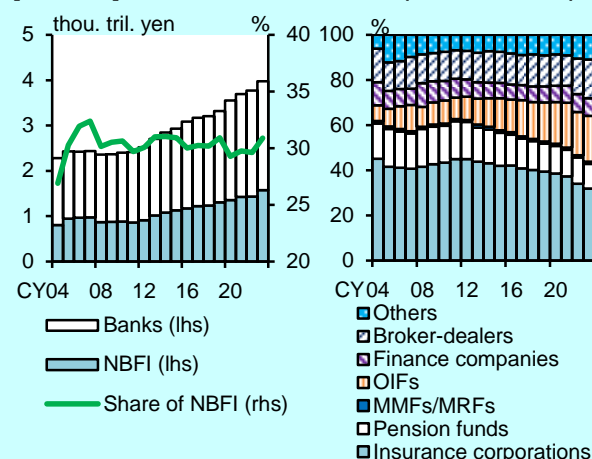
[Chart 2] Global NBFI's share and composition



Note: The left-hand chart shows the amount outstanding of financial assets of banks and NBFI in covered jurisdictions (see the footnote 4). "Share of NBFI" is the share of NBFI sector's asset in the total global financial assets of institutions including banks and NBFI as well as public financial institutions and central banks. The right-hand chart shows the composition of the NBFI subsector.

Source: FSB.

[Chart 3] NBFI's share and composition in Japan



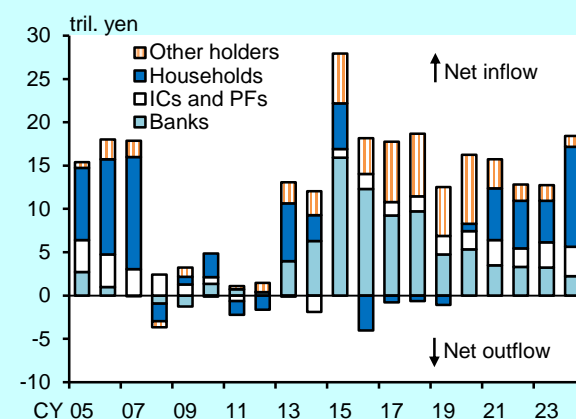
Note: See note on Chart 2.

Source: BOJ.

The share of traditional NBFI, comprising insurance corporations and pension funds, has been persistently declining, and that of broker-dealers has experienced a decline since the GFC. In contrast, there is a notable growth in "Other Investment Funds" (OIFs), which includes equity funds and fixed-income funds.⁶

In Japan, the NBFI sector comprises a 4.7% share of global NBFI assets, and about a 30% share of domestic financial assets. Although the latter figure is lower than the global average, the amount outstanding of the NBFI sector's assets itself has continued to increase (Chart 3). Sectorial breakdown indicates that the share of insurance corporations and pension funds has been declining while that of the OIFs has been rising, aligning with the global trend. The factors behind the increase in the OIFs' assets in Japan include inflows from banks since 2013, as well as growing inflows from households since 2021, as general interest in asset formation has increased amidst policy support

[Chart 4] Net flows of investment trusts by investor type



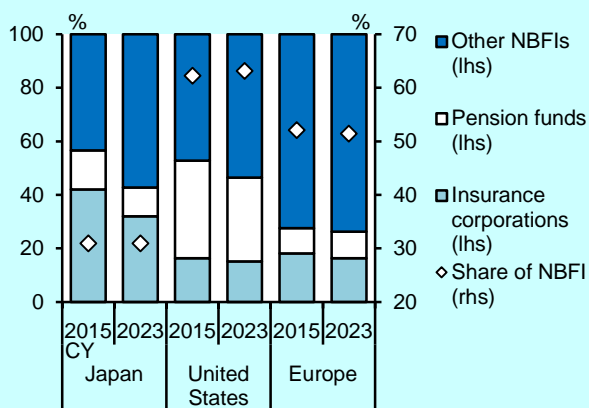
Note: "ICs and PFs" represents insurance corporations and pension funds.

Source: BOJ.

such as the NISA (Nippon Individual Saving Account) policy expansion (Chart 4).⁷ Another notable development in Japan is the growth of broker-dealers. This is likely due to increased demand for yen-denominated bonds and Japanese equities from foreign investors, intermediated mainly by foreign securities firms through repo and credit transactions.⁸

Chart 5 illustrates the share of the NBFi sector, as well as the sectorial breakdown within the NBFi sector in Japan, Europe, and the US. While the NBFi's presence in Europe is smaller than in the US, it is larger than in Japan, and the share of NBFi other than insurance corporations and pension funds (Other NBFis) is relatively high in Europe.⁹ Over the past decade or so, there has been an increase in the share of Other NBFis, while the share of insurance corporations and pension funds has decreased.

[Chart 5] Comparison of NBFi share and subsector composition by jurisdiction



Note: "Other NBFis" includes NBFis other than insurance corporations and pension funds. The definition of "Share of NBFi" is the same as in Chart 2.

Source: FSB.

Risk taking of NBFi

The monitoring exercise in GMR adopts a two-step approach. The first step takes a comprehensive look at the NBFi sector. The second step focuses on NBFis that play a vital role in financial stability among the Other NBFis. More specifically with regard to the latter, GMR defines the "narrow measure" of NBFi entities that may give rise to vulnerabilities due to their involvement in liquidity or maturity transformations, imperfect credit risk transfer, or use of leverage. GMR classifies five subsets of the narrow measure on the basis of their economic functions (EF). GMR monitors the risk-taking condition of each EF by evaluating vulnerability metrics (Chart 6).

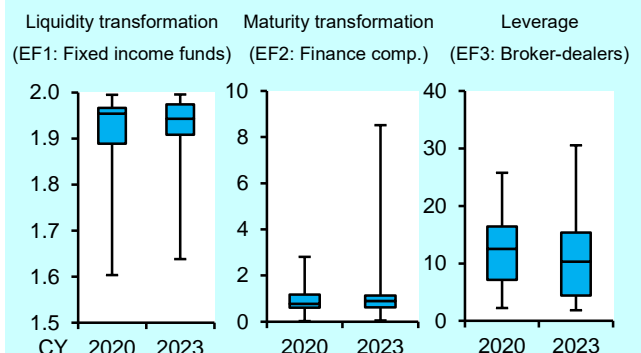
[Chart 6] Overview of the "narrow measure" of NBFi

Types	Economic functions	Typical entity types
EF1	Collective investment vehicles with features that make them susceptible to runs	Fixed income funds, Mixed funds, MMF·MRF
EF2	Lending dependent on short-term funding	Finance companies (Moneylending business, Consumer credit, Leasing)
EF3	Market intermediation dependent on funding secured by client assets or short-term funding	Broker-dealers, <i>Tanshi</i> companies, Securities finance companies
EF4	Facilitation of credit intermediation	Credit insurance companies
EF5	Securitization-based credit intermediation and provision of funds	Special purpose companies, Trusts (Securitization vehicles)

Vulnerability metrics

Vulnerability metrics include credit intermediation metrics that measure the degree of credit risk being taken, liquidity transformation metrics that measure the extent to which less liquid assets are funded by liquid liabilities, the leverage metrics that measure the degree of risk associated with debt repayment, and maturity transformation metrics that measure the extent of maturity mismatch between asset and liability. The higher the level of any metric, the more vulnerable it is in terms of credit risk or liquidity risk, and so on. In the major vulnerability metrics for EF1 to EF3 in Chart 7,

[Chart 7] Distributions of major vulnerability metrics among jurisdictions



Notes: 1. "Liquidity transformation" is the ratio of the sum of less-liquid assets (assets other than cash and cash equivalents) and short-term liabilities to the total financial assets. "Maturity transformation" is the ratio of short-term liabilities to short-term assets. "Leverage" is the ratio of the total financial assets to the equity.

2. Vertical lines represent maximum and minimum values. Boxes represent upper and lower 25th percentile values, and horizontal lines in boxes represent median values.

Source: FSB.

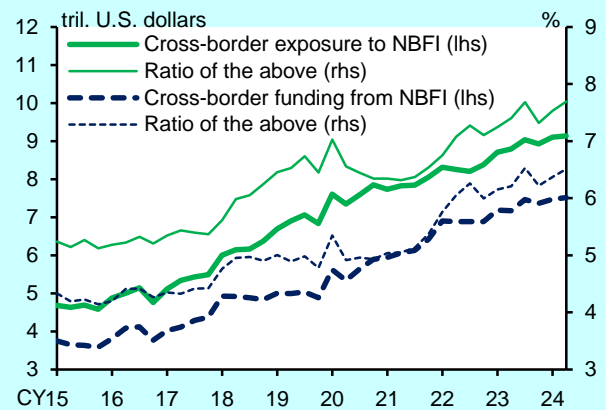
the liquidity transformation metrics for fixed income funds in EF1 (mostly open-ended funds) are close to the upper limit of 2 in many jurisdictions (Chart 7). This implies that fixed income funds are vulnerable to liquidity risk, as the majority of their assets are less liquid while the majority of their liabilities are liquid. For the maturity transformation metrics for EF2, although the width of the inter-jurisdictional distribution has broadened over time, its median has been lying close to 1, suggesting there is almost an absence of mismatch. For the leverage metrics for EF3, while the inter-jurisdictional distribution has widened over time, most of the jurisdictions have experienced declines in recent years. Overall, although several jurisdictions have been experiencing rising vulnerabilities from the perspectives of EF2 and EF3, the situation is not regarded as such on a global basis.

Interconnectedness

The monitoring exercise in GMR measures the shares of assets (claims) and liabilities vis-à-vis the NBFIs or banking sectors, for both cross-border transactions and transactions within a jurisdiction, in order to assess the extent of the interconnectedness between the NBFIs and banking sectors. For the domestic linkages, from the banking sector side, there has been a decline in both claims and liabilities vis-à-vis the NBFIs sector over the long term, although 2023 saw a slight rise in both claims and liabilities (Chart 8). From the NBFIs sector side, the shares of both claims and liabilities vis-à-vis the banking sector have been on a declining trend.

There are several factors to take into account when evaluating the interconnectedness. First, the interconnectedness in GMR does not take into account

[Chart 9] Banks' cross-border transactions with NBFIs



Note: Ratios represent the ratio of banks' cross-border claims/liabilities on NBFIs to the banks' total assets and liabilities excluding domestic local currency transactions.

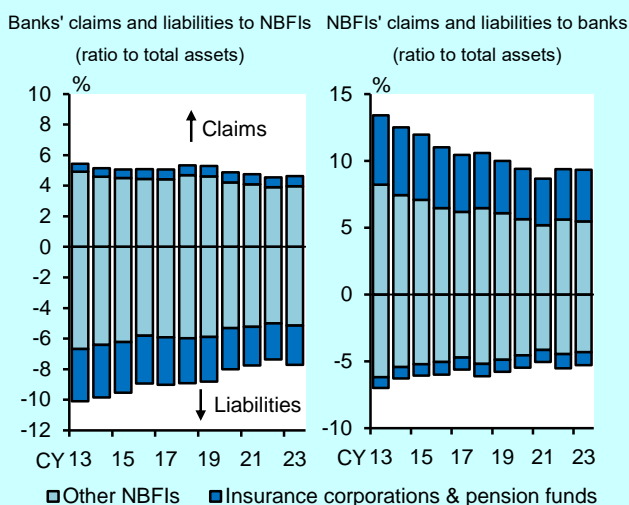
Source: Bank for International Settlements.

the off-balance-sheet relationship via derivative transactions. Second, it should be noted that the interconnectedness between the NBFIs and banking sectors has been rather growing when considering cross-border transactions or transactions that involve large financial institutions (Chart 9).¹⁰ Regarding the GFC, it is reported that strains on large NBFIs in the US at that time propagated across borders via transactions in international financial markets. In order to evaluate the degree of interconnectedness, it is essential to analyze not only in terms of on-balance-sheet holdings, but also from the perspectives of cross-border claims and liabilities, concentration risk, risk transfer via off-balance-sheet transactions, as well as portfolio similarities.

Policy Recommendation and Consultation by FSB

Since the GFC, the FSB has been engaged in ongoing discussion regarding monitoring approaches and regulatory frameworks, mainly for securitization, MMF, and repo transactions.¹¹ In recent years, as the presence of investment funds has increased, the FSB has released consultation reports and policy recommendations on liquidity risk management of open-ended funds, and margin/collateral management for NBFIs with large derivative positions, with the aim of strengthening risk management and policy supports (Chart 10).¹²

[Chart 8] Interconnectedness



Note: "Other NBFIs" represents NBFIs other than insurance corporations and pension funds.

Source: FSB.

[Chart 10] Major policy recommendations and consultations by FSB in recent years

Area	Expected primary effects	Major recommendations	Assumed subsectors
Liquidity risk (Policy recommendation)	<ul style="list-style-type: none"> Addressing structural liquidity mismatch Improving balance of redemption cost burden 	Collection of liquidity profiles by authorities; review and expansion of disclosure requirements; formulation of guidance on liquidity risk management; promotion of liquidity management tools including stress testing; use of anti-dilution tools	OIFs
Margin and collateral practices (Policy recommendation)	<ul style="list-style-type: none"> Mitigation of procyclicality during market stress Reduction of liquidity crunch at the time of additional margin/collateral requirements 	Maintaining sufficient level of cash and liquid assets; incorporating the management of margin and collateral calls in the liquidity management framework; defining tolerance for liquidity risk; development of contingency funding plans and conducting liquidity stress tests; establishment of resilient, effective, and transparent margin practices given procyclical nature of margin	Hedge funds, OIFs, Broker-dealers, Insurance corporations, Pension funds, etc.
Leverage (Consultation)	<ul style="list-style-type: none"> Mitigation of the effect of deleveraging Reduction of counterparty credit risk Identification and mitigation of regulatory incongruences among jurisdictions 	Establishment of monitoring framework on NBFI leverage by regulators; identification of vulnerabilities arising from leverage and evaluation of policy measures; enhancement of public disclosures on leverage; evaluation of a wide range of leverage related policy measures; implementation of the guidelines on counterparty credit risk of leverage providers; adaptation of the "same risk, same regulatory treatment" principle and enhancement of cross-border cooperation	Hedge funds, Broker-dealers, Insurance corporations, Pension funds, etc.

Source: FSB

Liquidity risk in open-ended funds

Open-ended funds (OEFs) represent about one-fifth of the NBFI sector's holdings,¹³ and are subject to structural liquidity mismatches. As investors have the option to redeem their OEF positions at any time, this could result in a rapid outflow from OEFs.

More specifically, if the outflow of funds significantly exceeds the cash and deposits available, or the borrowing capacity of the OEFs, the funds may be required to raise cash through large-scale sales of invested assets in order to meet investors' redemptions. This could exert downward pressure on the market price of the assets, potentially leading to a decline in the funds' NAV (net asset value), as well as the NAV of other entities investing in the same assets. In this case, when costs for redemptions are not properly allocated to redeeming investors, or when investors are able to redeem before the fund's NAV adjusts to fully reflect those declines in value, investors who redeem in advance might be able to redeem on more favorable terms than those who redeem later. As long as such a mechanism exists, there is the potential for large-scale systemic risk to materialize, as investors seeking to benefiting from a first-mover advantage could drive redemptions.¹⁴

The FSB, in collaboration with the International

Organization of Securities Commissions (IOSCO), has released policy recommendations on liquidity risk management of OEFs with respect to disclosure requirements, strengthening governance, improvement of regulatory reporting, enhancing and promoting of liquidity management tools, and conduct of liquidity stress test. In addition to these, the FSB has recently recommended introducing measures so that each OEF establishes a redemption frequency depending on the category classified according to liquidity of the fund's asset holdings, and OEFs investing in less-liquid assets are able to use anti-dilution tools as part of their day-to-day liquidity risk management.^{15,16} In response to the recommendations, financial authorities in developed economies have started discussions toward implementation.¹⁷

Leverage and margining practices

There are NBFI entities, such as some hedge funds, that employ investment strategies involving high leverage.¹⁸ Other NBFIs, including some broker-dealers and pension funds, also leverage heavily by engaging in risk management using derivative transactions, and by conducting funding or securities lending through repo transactions, because such transactions enable the entities to hold a large notional amount by posting the required margin or collaterals.

Since the amount of required margin is determined primarily by notional amounts and volatilities, other things being equal, higher levered NBFIs are more likely to encounter a larger margin or collateral call during periods of heightened volatilities. Such NBFIs are also more likely to face debt repayment pressure, as they tend to be regarded as more prone to failure by credit providers such as banks and broker-dealers. If highly leveraged NBFIs sell a significant amount of their securities holdings to meet a margin call or a debt repayment request, the repercussions for the financial system could be considerable through falling prices and heightened volatilities.¹⁹ It has also been suggested that some NBFIs may take actions such as increasing their leverage in terms of off-balance sheet rather than on-balance sheet, or diversifying their funding sources, with a view to circumventing both regulators and counterparties from accurately capturing the precise magnitude of their leverage.²⁰

The FSB and IOSCO have pointed out that NBFIs with substantial derivative positions should maintain sufficient liquidity in the form of cash, deposits, and highly liquid assets to meet margin calls. They have also emphasized that margin and collateral management should be integrated within the liquidity risk management framework that encompasses liquidity stress tests and the liquidity contingency plan. Furthermore, they have highlighted that margin practices should be transformed into robust ones with effectiveness and transparency, taking into account the procyclical nature of margin.²¹ Furthermore, a consultation document has been released covering the implementation of measures and the establishment of a framework to identify and monitor risk associated with overall leverage, including not only those originating from derivatives and repo transactions, but also those associated with fund financing and margin loans.²² It has also been recommended that regulatory inconsistencies across jurisdictions in relation to leverage should be identified.²³ According to the FSB, in anticipation of future developments, it is in the process of finalizing the report to provide financial authorities with necessary support.

Issues in Monitoring NBFI

As explained so far, efforts to monitor and strengthen

NBFIs and related international discussions have been progressing, along with the publication of GMRs and policy recommendations released by the FSB. There remain issues associated with monitoring NBFI from the perspective of financial stability. The first issue is the data gap. There are differences by jurisdiction in the scope and granularity of NBFI. It is often the case that off-balance-sheet transactions are not adequately reflected and there is a limitation in the capture of the concentration risk.²⁴ Such data gaps prevent regulators and financial institutions from comprehensively capturing the source of NBFI risk and vulnerability caused by NBFI leverage. The second issue is related to capturing cross-border interconnectedness. As cross-border transactions between NBFI and banks are expanding, there is a need for a deeper analysis of the various channels through which shocks can spillover in international financial markets, including portfolio overlapping, risk transfer, risk hedging, or arbitrage transactions. The third issue is related to capturing risks within each NBFI business. There is a broad variety of business models in NBFI, which in turn have diverse means of funding and investment as well as risk management methods. The continuing policy agenda is therefore to comprehend more fully the risk characteristics and complexity of each NBFI to keep developing measures that maximize the financial intermediation function of NBFIs while minimizing financial stability risks.

The FSB and financial authorities are in agreement regarding the issues and are working together to stabilize the financial system by improving the ability to identify vulnerabilities and expanding the data on NBFI. The Bank of Japan has also regularly assessed changes in the size of Japan's NBFI, along with the relevant background information, as outlined in the Financial System Report. It has also conducted an ad hoc analysis on the interconnectedness between the banking and NBFI sectors in 2021. Furthermore, it has been addressing issues surrounding the governance and monitoring of NBFI through participation in the International Data Hub and the expansion of Japan's flow of funds accounts.²⁵ With these efforts, it is important to enhance the understanding of how recent developments in the NBFI landscape are impacting characteristics of risks inherent in the financial system.

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¹ The global financial crisis of 2007-09 saw the collapse of broker-dealers such as Lehman Brothers and Bear Stearns, as well as insurance corporations such as AIG and monoline insurers, freezing or collapse of investment funds managed by

broker-dealers, and declines in the price of securitized products such as CDOs. In each of these cases, it has been pointed out that the economic behavior of NBFI may have been an amplifying factor or a source of the stresses. There are many pointers and analyses (in the variety of discussions on the global financial crisis, for example, see Darrell Duffie (2010), "The Failure

Mechanics of Dealer Banks," *Journal of Economic Perspectives* 24(1), pp.51-72). In recent years, the March 2020 market turmoil in the early stage of the pandemic is said to have caused a rapid outflow of funds from prime MMFs, leading to a disruption in the short-term money markets, such as suspensions of redemption in some funds, or an increase in CP issuance rates (see FSB (2020), "Holistic Review of the March Market Turmoil"). In March 2021, the collapse of a family office caused huge losses in major financial institutions that had extended credit to the fund, including Japanese institutions. During the September 2022 turmoil in the UK gilt market, UK pension funds that used derivatives to make the Liability Driven Investments (LDI) suffered margin shortfalls which amplified the rise in interest rates (see Ito *et al.* (2023), "Corporate Pension Funds' Investment Strategies and Financial Stability: Lessons from the Turmoil in the UK Gilt Market," Bank of Japan Review Series 2023-E-3). At the beginning of August 2024, it was pointed out that the unwinding of highly leveraged positions by foreign investors amplified volatilities of equities and other financial products in developed countries, including Japan (see BOX 1 in the October 2024 issue of the *Financial System Report*).

² The GMR has been under its current name since 2019. Until 2018, it was called the "Global Shadow Banking Monitoring Report."

³ From Japan, the Financial Services Agency and the Bank of Japan are participating.

⁴ Chart 2 covers 21 countries/regions including the Euro area, Argentina, Australia, Brazil, Canada, Cayman Islands, Chile, China, Hong Kong, India, Indonesia, Japan, Korea, Mexico, Russia, Saudi Arabia, Singapore, South Africa, Switzerland, Turkey, the United Kingdom, and the United States.

⁵ See FSB (2024), "Enhancing the Resilience of Non-Bank Financial Intermediation: Progress report."

⁶ OIFs consist of bond and equity funds, as well as mixed funds that invest in multiple asset classes, and do not include MMFs/MRFs and hedge funds. OIFs' amount outstanding of financial assets declined temporarily in 2022 against the backdrop of rising global interest rates, but turned to increase in 2023 mainly due to valuation factors, especially in equity funds. MMFs, typically MMFs that invest primarily in short-term government bonds, have seen an increase in inflows from deposits in recent years, which results in an increase in their financial assets.

⁷ See Japan Securities Dealers Association (2024), "National Survey on Securities Investments - 2024 Survey Report (Individual Survey)," October 2024 (available in Japanese only).

⁸ The increase in repo transactions is the main reason for the expansion of leverage of broker-dealers, but these result primarily from two-sided transactions without duration mismatches between their assets and liabilities. The repo assets of foreign- and Japanese-affiliated securities firms were close at the end of FY2010 (foreign-affiliated securities firms: 24.8 trillion yen, Japanese-affiliated securities firms: 23.3 trillion yen), but the former had become more than double the latter by the end of FY2023 (foreign-affiliated securities firms: 90.0 trillion yen, Japanese-affiliated securities firms: 41.9 trillion yen).

⁹ "Europe" in Chart 5 is the sum of Euro area, Switzerland, and the United Kingdom.

¹⁰ For example, see ECB (2024), "Financial Stability Review, May 2024." Chart 9 covers 48 countries/regions (as of 2022).

¹¹ See Nao Sudo, Kousaku Taira, Kouji Nakamura, (2015) "The Current State of Shadow Banking: Focusing on International Trends and Monitoring and Regulatory Efforts after the Financial Crisis," Bank of Japan Review Series, no. 2015-J-10 (available in Japanese only).

¹² In November 2020, the FSB published a holistic review of the market turmoil in March of that year. The review pointed out factors that amplified liquidity stresses during the market turmoil, including the surge in margin calls, redemption incentives ahead of others in open-ended funds, and the dysfunction of the short-term money markets as a result of the large scale redemptions from prime MMFs. For details, see FSB (2020) in the footnote 1.

¹³ See International Monetary Fund (2022), "Asset Price Fragility in Times of Stress: the Role of Open-End Investment Funds," Global Financial Stability Report, October 2022, Chapter 3.

¹⁴ See FSB (2023), "Revised Policy Recommendations to Address Structural Vulnerabilities from Liquidity Mismatch in Open-Ended Funds."

¹⁵ Anti-dilution liquidity management tools are tools designed to pass on to redeeming investors the explicit and implicit costs of redemptions and subscriptions. The tools include "swing pricing" where a fund's NAV is adjusted to pass on to redeeming or subscribing investors the costs associated with their trading activity. Another anti-dilution tool is "anti-dilution levies" where a fund charges a fee on redemptions. For liquidity management tools to prevent dilution, see FSB (2023) in the footnote 14, as well as IOSCO (2023), "Anti-dilution Liquidity Management Tools – Guidance for Effective Implementation of the Recommendations for Liquidity Risk Management for Collective Investment Schemes."

¹⁶ See FSB (2023) in the footnote 14, as well as FSB (2017), "Policy Recommendations to Address Structural Vulnerabilities from Asset Management Activities."

¹⁷ In Europe, for example, the European Securities and Markets Authority is conducting a consultation for the introduction of anti-dilution tools. For details, see European Securities and Markets Authority (2024), "Consultation paper: Guidelines on Liquidity Management Tools of UCITS and Open-ended AIFs."

¹⁸ FSB (2023), "The Financial Stability Implications of Leverage in Non-Bank Financial Intermediation" pointed out that the size of the debt of NBFIs in major countries is similar to that of households, and that more than 90% of their debt comes from NBFIs other than insurance corporations and pension funds, such as broker-dealers, hedge funds, finance companies, and securitization vehicles.

¹⁹ FSB (2023) in the footnote 18 points out two channels: the channel through the sale of assets held by the leveraged NBFI (position liquidation channel); and the channel where default or deterioration of creditworthiness of the leveraged NBFI causes a reduction in loans extended from counterparties, or leads to deterioration in the financial condition of counterparties (counterparty channel).

²⁰ Leverage that is not reflected in financial statements or that is difficult for counterparties to identify is referred to as hidden leverage. Hidden leverage includes off-balance-sheet leverage using derivatives or special purpose companies, leverage from repo transactions with low haircut rates, leverage of private funds or family offices which are not subject to stringent financial disclosure requirements, and leverage where funding sources are spread across multiple prime brokers.

²¹ For margin practices, see FSB (2024), "Liquidity Preparedness for Margin and Collateral Calls: Final report," Basel Committee on Banking Supervision, Committee on Payments and Market Infrastructures and Board of the International Organization of Securities Commissions (2022), "Review of Margining Practices"; Basel Committee on Banking Supervision, Committee on Payments and Market Infrastructures and Board of the International Organization of Securities Commissions (2025), "Final report: Transparency and Responsiveness of Initial Margin in Centrally Cleared Markets – Review and Policy Proposals."

²² Borrowings secured by the fund's NAV or the fund's capital call rights to investors (NAV financing, subscription financing) are known.

²³ See FSB (2024), "Leverage in Non-bank Financial Intermediation: Consultation report" and FSB (2024) in the footnote 21.

²⁴ In recent years, the FSB has been collecting unconventional data from each jurisdiction, such as the concentration of the top five entities in each EF in the "narrow measure" of NBFI, or the percentile values of the vulnerability metrics, in addition to the conventional aggregations within subsectors.

²⁵ Financial authorities of developed countries have launched the International Data Hub to collect detailed data on large financial institutions' claims, debts, etc. based on the G20 agreement in October 2009 after the global financial crisis.

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