Bank of Japan Review 2025-E-7

Changing Landscape of NBFIs in Financial Systems —A Comparative Analysis of Japan, the U.S., and Germany—

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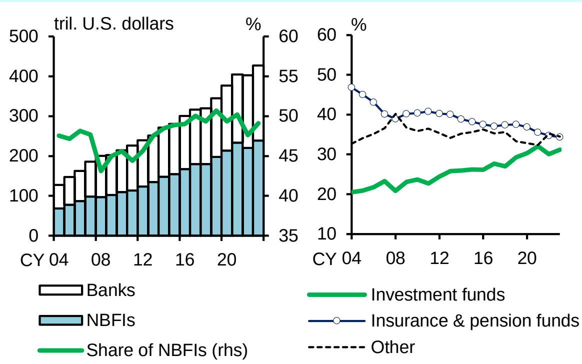
The total assets of non-bank financial intermediaries (NBFIs) worldwide have been expanding since the global financial crisis. This report assesses the presence of domestic and foreign NBFIs in the domestic financial system and their interconnectedness with banks in Japan, the U.S., and Germany, using various data such as flow of funds and statistics from international organizations. The size of NBFIs varies across countries as the share of financial assets held by NBFIs stands at over 50 percent in the U.S., while it hovers only around 20-30 percent in Japan and Germany. That said, given the presence of foreign NBFIs, data suggest that the assets under management by NBFIs have become sizable in all three countries—particularly in bond and stock markets—, and the interconnectedness measured by mutual exposure between banks and NBFIs has increased.

Introduction

Non-bank financial intermediary (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 companies, pension funds, investment funds, broker-dealers, and finance companies. The assets outstanding of NBFIs worldwide account for about half of the whole financial system, and the breakdowns show that the share of investment funds has been expanding (Chart 1).[1] Yet, the size of NBFIs, their composition and activities are not necessarily homogenous given the history of the financial industry and the difference in regulations and institutional settings. In fact, the Global Monitoring Report on Non-Bank Financial Intermediation (GMR) by the Financial Stability Board (FSB) indicates that the size of domestic NBFIs and their composition varies across countries and regions.[2]

[Chart 1] Size of Financial Asset Worldwide



Note: "Other" in the right-hand chart includes broker-dealers and finance companies etc. Latest data as of December 2023.

Source: FSB.

The NBFI's asset-liability structure and financial intermediation differ considerably from the credit provision by banks which have stable deposit funding bases under tightened regulations since the global financial crisis. There are also variations within NBFIs due to factors specific to sectors or individual firms. Therefore, the size of NBFIs and their different characteristics could have significant implications for behavior of the financial system in normal times and in times of stress.

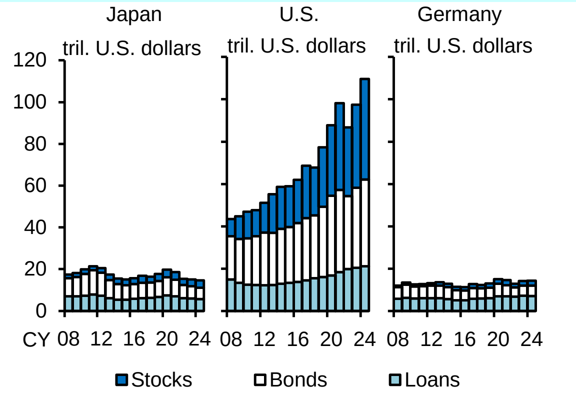
This report assesses the presence of NBFIs in the domestic financial systems and interconnections with banks in Japan, the U.S., and Germany.[3] It covers the period after the global financial crisis in the late 2000's, dividing the NBFIs into three broad categories: insurance companies and pension funds, investment funds, and other non-banks (e.g., broker-dealers), unless otherwise noted.[4]

Presence of NBFIs in Domestic Financial Systems

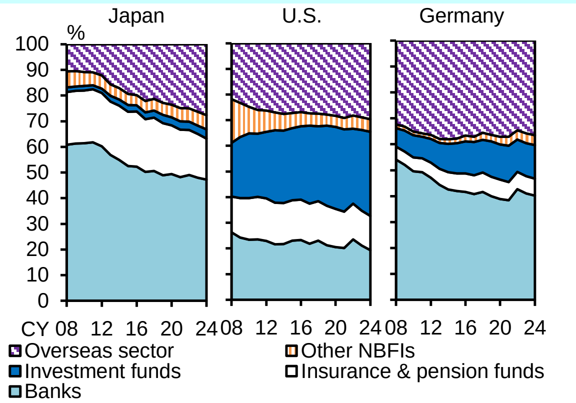
First, let us take a closer look at the breakdown of the assets outstanding in the financial system by sector in the three countries, using national flow of funds statistics and data from international organizations (Chart 2).[5]

[Chart 2] Financial Asset Holding by Financial Sector

<Amount Outstanding>



<Share by Sector>



Note: Includes domestic financial assets held by domestic financial sector and the overseas sector. "Overseas sector" in Germany includes other European countries. The bottom chart shows the share of the sum of loans provided, bond, and stock holding. Latest data as of December 2024.

Source: Bundesbank; FRB; BOJ.

In the U.S., the 2024 financial accounts data suggest that NBFIs account for 50 percent of total domestic assets, followed by 30 percent for the overseas sector, and 20 percent for banks. Among NBFIs, investment funds account for 60 percent, followed by 30 percent for insurance companies and pension funds and 10 percent for other non-banks. The change from the global financial crisis suggests that the share of the three sectors (overseas, NBFIs, and banks) has stayed almost the same, but the share of investment funds has been expanding.

Relative to the U.S., the share of NBFIs in Japan and Germany has been small at 20-30 percent, while the share of banks ranges from 40 to 50 percent. In addition, there is a difference in the change in the share of the three sectors (overseas, NBFIs, and banks) since the global financial crisis. In Japan, the share of the overseas sector has expanded from 10 to 30 percent with that of banks shrinking. In Germany, the share of investment funds, in particular, among NBFIs has increased while that of banks has diminished.[6] Out of NBFIs, investment funds account for about 60 percent and have been on an increasing trend in the U.S. and Germany. In contrast, insurance companies and pension funds account for more than 60 percent in Japan, while the share of investment funds has increased but remains limited in levels.

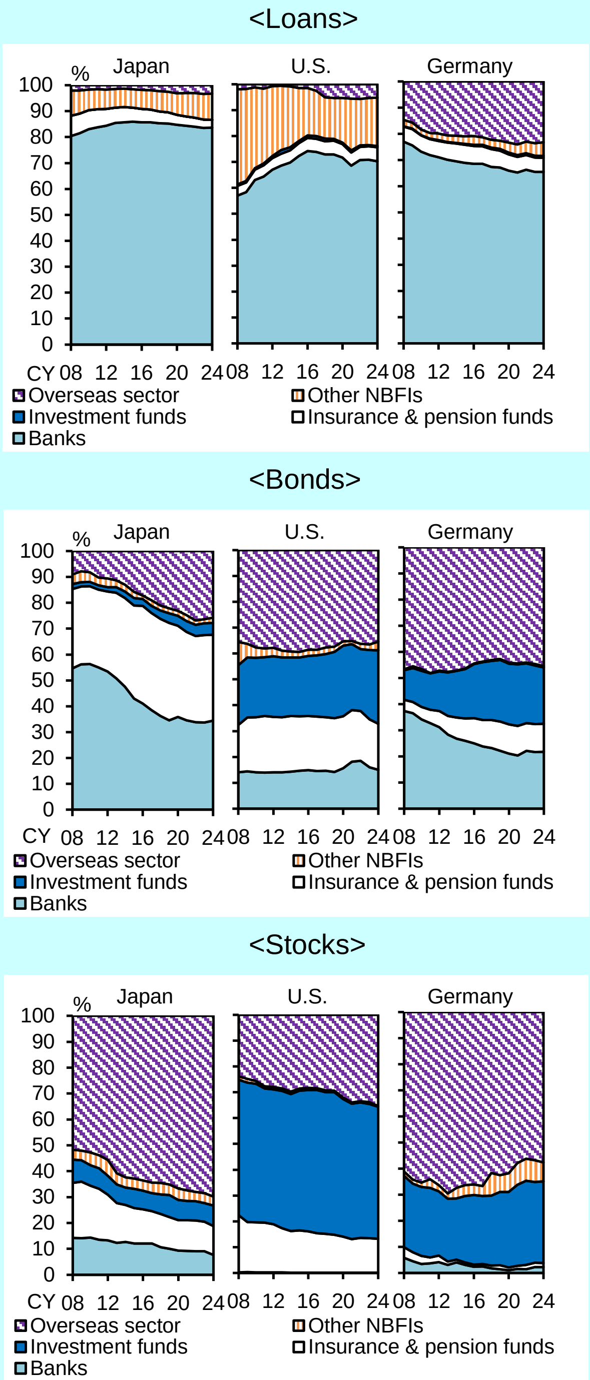
Change in the presence of NBFIs in domestic loan, bond, and stock markets

Next, let us review the presence of each sector in loan, bond, and stock markets. The presence of NBFIs significantly varies across markets.[7]

In the loan market, banks have provided 70-80 percent of loans and played a pivotal role in all three countries (Chart 3).[8] Aside from banks, other non-banks such as broker-dealers and finance companies stand out in Japan and the U.S., while the overseas sector, including loans from other European countries, comes next to banks in Germany. In terms of the change since the global financial crisis, it should be noted that: banks and the overseas sector have expanded in the U.S. with NBFIs shrinking due in part to the decline in the origination of securitized products; loans from domestic banks have decreased in Germany with loans from other European countries increasing, which has resulted in an increase in the overseas sector.

In the bond market, the presence of banks has been limited relative to the loan market. The share of banks' bondholding is around 30 percent in Japan, which is the highest among the three countries, while that in the U.S. is about 20 percent, which is the lowest. The share of overseas and NBFIs has been relatively high although it varies across countries. In the U.S., NBFIs account for 50 percent with investment funds and insurance companies and pension funds representing half each. In Japan and Germany, NBFIs account for around 40 percent, but there is a difference in the composition: insurance companies and pension funds make up most of the bondholding of NBFIs in Japan, while investment funds comprise more than half in Germany. From the perspective of the change since the global financial crisis, there seems to be no significant change in the share within sectors in the U.S., but in Japan, the share of the overseas sector has expanded from 10 to 30 percent, with that of banks plunging, and in Germany, the share of investment funds has gradually increased, with that of banks also shrinking.[9]

[Chart 3] Share of Asset Holding by Sector and Asset



Note: Includes domestic financial assets held by domestic financial sector and the overseas sector. "Overseas sector" in Germany includes other European countries. Latest data as of December 2024.

Source: Bundesbank; FRB; BOJ.

In the stock market, the share of banks' holdings is greatly limited relative to the loan and bond markets with that in Japan remaining less than 10 percent, which is yet the highest among the three countries. In the U.S., NBFIs account for somewhat more than 60 percent, followed by the overseas sector. Out of NBFIs' holdings, investment funds represent about 80 percent. In Japan and Germany, on the other hand, the overseas sector accounts for 60-70 percent, followed by NBFIs. Looking at the change since the global financial crisis, the overseas sector has expanded in Japan and the U.S., with the share of insurance companies and pension funds declining, while the overseas sector has seen a modest decline in Germany with investment funds growing.

Footprint of NBFIs in the overseas sector

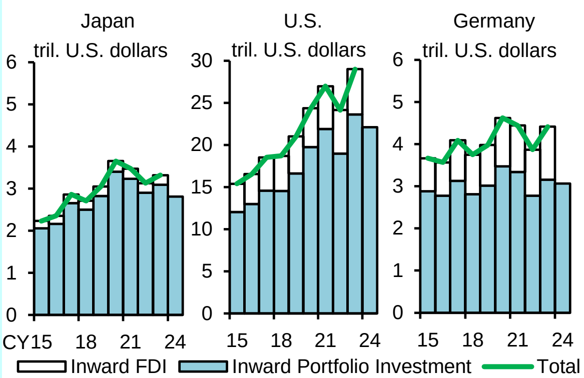
As mentioned above, the overseas sector's asset holdings, which is colored purple in Chart 3, represents a sizable share in the financial system in all the three countries in recent years. On top of that, the share of the overseas sector has grown rapidly in Japan's bond and stock markets.

In terms of financial intermediation in the financial system, the presence of NBFIs in each country could be larger than Chart 2 indicates, if the breakdown of the overseas sector is taken into account. Although it is not easy to further break down the asset holdings of the overseas sector by detailed sector, an approximate trend can be captured from inward portfolio investment which represents most of the financial assets of the overseas sector.[10] The Portfolio Investment Positions by Counterpart Economy (formerly CPIS) data [11] published by the International Monetary Fund (IMF) record inward portfolio investment into Japan, the U.S., and Germany by sector, which suggest that investment by foreign NBFIs, in particular, investment funds etc., has been sizable with that of foreign banks remaining limited in all three countries (Chart 4). Notably, the increase in the share of foreign investment funds has been remarkable in the U.S. These observations point to the possibility that the presence of NBFIs could be much larger in Japan and Germany where the share of asset holdings by domestic NBFIs has not necessarily been large.

The breakdown of the overseas sector by country suggests mutual investment among Japan, the U.S., and Germany, and the existence of countries which have invested in all three. In this regard, let us review the countries of fund domicile which have the largest shares in inward portfolio investment.[12] In the U.S., investment funds domiciled in the Cayman Islands, known as an offshore financial center, account for about 30 percent, and those domiciled in Luxembourg and Ireland, which are recognized as offshore financial centers in Europe due to tax benefits and the accumulation of information and human resources for fund business, make up 20 percent each. Investment funds domiciled in European countries including Germany comprise 40 percent, while those domiciled in Japan represent 10 percent. For Japan and Germany, investment funds domiciled in the U.S. account for a large portion, 50 percent and 30 percent, respectively, followed by the sum of those domiciled in Luxembourg and Ireland amounting to about 20 percent and 40 percent, respectively. Investment funds domiciled in the Cayman Islands account for about 10 percent of the inward portfolio investment into Japan by foreign investment funds (Charts 5 and 6). [13] These interconnections through NBFIs' foreign investment could contribute to synchronizing financial intermediation activities in the domestic financial system.

[Chart 4] Inward Portfolio Investment by Sector

<Amount Outstanding>



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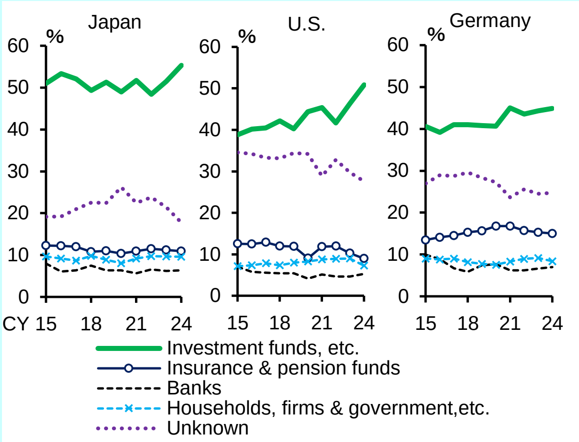


Note: Latest data as of June 2024 for inward portfolio investment, and December 2023 for inward FDI.

Source: IMF.

Interconnections between Banks and NBFIs

While Charts 2 and 3 show the share of sectors which have provided the financing to the entities of the final demand, these sectors themselves would receive credit from other financial institutions, depending on the characteristics of financial intermediation. In particular,

[Chart 5] Share of Inward Portfolio Investments Outstanding by Country

<Total>

%

Japan		U.S.		Germany	
U.S.	39	Cayman Islands	16	U.S.	16
Cayman Islands	7	Japan	8	Luxembourg	12
Luxembourg	5	Ireland	8	France	7
Ireland	5	Luxembourg	8	Netherlands	6
UK	5	Canada	8	Ireland	6
France	4	UK	6	UK	5
Other	35	Other	46	Other	48

<Of which: Investment Funds etc.>

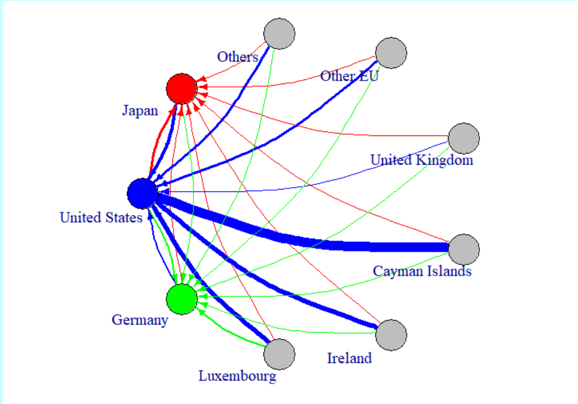
%

Japan		U.S.		Germany	
U.S.	51	Cayman Islands	35	Luxembourg	28
Cayman Islands	13	Ireland	18	U.S.	26
Luxembourg	11	Luxembourg	17	Ireland	13
Ireland	10	Japan	11	France	7
UK	4	Australia	4	Cayman Islands	6
Germany	2	Germany	4	Japan	5
Other	9	Other	12	Other	15

Note: Data as of end 2023.

Source: IMF.

[Chart 6] Inward Portfolio Investments to Japan, the U.S., and Germany by Foreign Investment Funds



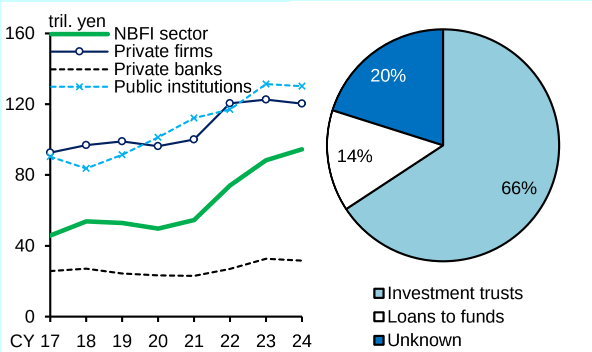
Note: The size of arrows represents portfolio investment outstanding by investment funds etc. domiciled in each country and region (red: Japan, blue: the U.S., green: Germany). Data as of December 2023.

Source: IMF.

banks and NBFIs do not necessarily engage in financial intermediation independently, but could be subject to the interconnections through financial transactions. For instance, domestic NBFIs may act as a hub when the overseas sector, including banks, invests in domestic assets (conversely when domestic sectors invest in foreign assets). In the case where Japanese banks invest in U.S. domiciled funds that invest in U.S. bonds, this leads to an increase in the share of investment funds in the middle panel of Chart 2. At the same time, this implies an increase of interconnections between Japanese banks and foreign NBFIs. In fact, Japanese banks' overseas loans and investments indicate that exposure to foreign NBFIs has been expanding, mainly led by investment trusts, while it has been smaller in level than exposure to foreign private firms and public institutions (Chart 7).

[Chart 7] Foreign Loans and Investments Outstanding of Japanese Banks

<By Sector> <Of which: NBFIs>



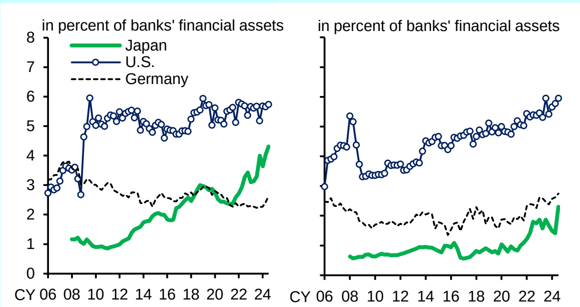
Note: Based on BIS International Consolidated Banking Statistics (CBS). Excludes trust banks. MBS investments by major banks and others are excluded from "NBFI sector" and included in "Public institutions." Latest data for the left-hand and data for right-hand charts are as of December 2024 and September 2024, respectively.

Source: U.S. Department of the Treasury; BOJ.

Then, let us check the interconnections between domestic banks and foreign NBFIs in the three countries (Chart 8).

[Chart 8] Exposure between Domestic Banks and Foreign NBFIs

<Banks to NBFIs> <NBFIs to Banks>

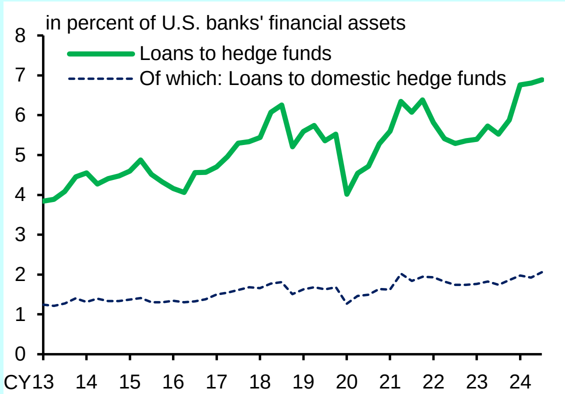


Note: Based on estimates. Includes loans and bonds. Latest data as of September 2024.

Source: BIS; Bundesbank; FRB; BOJ.

In the U.S., both banks' exposure to foreign NBFIs and foreign NBFIs' exposure to domestic banks remains about 5 percent of banks' total assets. It has been pointed out that the gradual increase in loans to foreign hedge funds has contributed to the former (Chart 9), [14] and the foreign hedge funds' repo transactions in need of securities funding have contributed to the increase of the latter. While these foreign hedge funds are domiciled in offshore financial centers such as the Cayman Islands due in part to tax benefits, most of them tend to operate in the U.S. and raise capital from U.S. investors. Taking these factors into account, it can be said that capital flows are returning to the U.S. via investment funds, which warrants attention in that it differs in nature from the expansion of foreign investment funds in Japan and Germany.

[Chart 9] Loans to Hedge Funds by U.S. Banks



Note: Latest data as of September 2024.

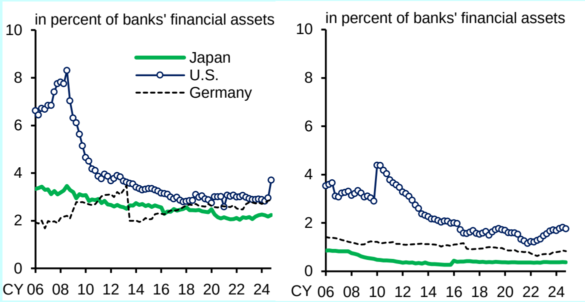
Source: FRB; SEC.

In Japan and Germany, domestic banks' interconnections with foreign NBFIs have been relatively small compared with the U.S. Nevertheless, as mentioned above, the exposure of Japanese banks to foreign NBFIs has been on an increasing trend, while the exposure of foreign NBFIs to Japanese banks has also expanded due to an increase in foreign currency funding by Japanese banks[15] through the U.S. prime money market funds' (MMF) purchase of CD/CPs and repo transactions with government MMF. [16] In Germany, mutual exposure between domestic banks and foreign NBFIs has been on a declining trend since the global financial crisis, but there appears to be signs of change in this trend in recent years.[17]

It should be noted that the interconnections between domestic banks and domestic NBFIs have declined or leveled off since the global financial crisis, remaining small on the whole in recent years compared with those with foreign NBFIs. For instance, in the U.S., domestic banks' exposure to domestic NBFIs has been on a declining trend mainly due to a decrease in investments in securitized products and repo transactions with broker-dealers since the global financial crisis (Chart 10). [18, 19] In Japan, loans from domestic banks to domestic NBFIs including money lenders account for a certain proportion, but they have remained limited in level.[20]

[Chart 10] Exposure between Domestic Banks and Domestic NBFIs

<Banks to NBFIs> <NBFIs to Banks>



Note: Based on estimates. Includes loans for Japan, and loans and bonds for the U.S. and Germany. Latest data as of December 2024.

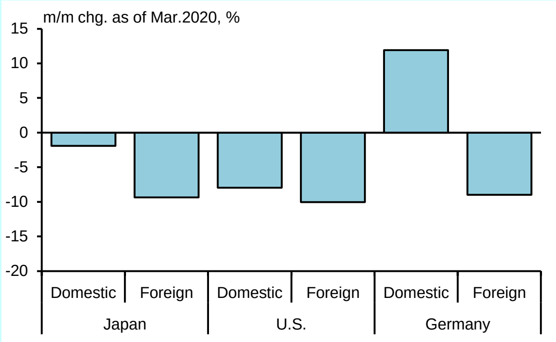
Source: Bundesbank; FRB; BOJ.

Financial Stability Implications of the Change in the Presence of Domestic and Foreign NBFIs

The presence of NBFIs in domestic financial systems has various implications for financial cycles and financial systems' resilience to stress. However, there is as yet no consensus on this issue. For instance, there has been a long-standing argument that a financial system that consists of banks and NBFIs might be resilient because they can complement each other in providing financing to firms etc., should either become dysfunctional.[21] On the other hand, in recent years, it has been pointed out that NBFIs with vulnerabilities in their liability structure and leverage could sell assets in the wake of stress, leading to market fluctuations and negative spillovers to banks, amid the strengthening interconnections between banks and NBFIs.[22]

An increasing share of the overseas sector in providing financing to domestic financial systems implies that domestic financing and financial intermediation activities are not only subject to domestic financial cycles but also increasingly to global factors. In fact, the share of overseas sector has reached almost 30 percent in all three countries. For instance, it is known that, in the wake of stress in international financial markets, foreign investment funds raise funds from global investors and diversify their investments worldwide so that they might sell securities which are not necessarily associated with the asset classes or regions that stress stems from.[23] Actually, when open-end bond funds were exposed to redemptions globally during the market fluctuations in March 2020, open-end bond funds, led by foreign funds, sold domestic bonds not only in the U.S. where were the most severely stressed, but also in Japan and Germany (Chart 11).[24]

[Chart 11] Change of Bond Holding by Domestic and Foreign Investment Funds during Pandemic

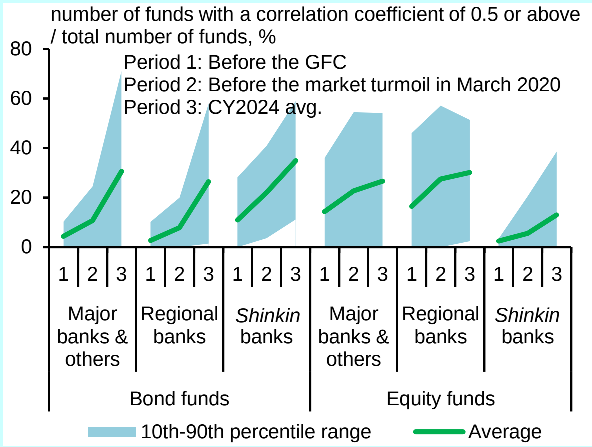


Source: LSEG Lipper.

Lastly, the fact that domestic sectors including banks have invested in foreign assets through investment funds suggests that foreign-origin stresses could result in gains/losses of their asset holding via valuation gains/losses on securities held by investment funds. For example, the number of Japanese banks whose portfolios are highly correlated with those of many investment funds, in particular with bond funds, has been on an increasing trend across types of banks (Chart 12).[25]

[Chart 12] Correlations between Returns on Banks' Securities Portfolios and Investment Funds

<Share of Investment Funds Whose Returns Are Highly Correlated with Securities for Each Bank>



Note: Correlation coefficients between returns on banks' securities portfolios and investment funds (about 50 types of open-end funds categorized by investment region and product) are calculated, and the share of funds with a correlation coefficient of 0.5 or above is calculated for each bank. Period 1 is from January 2005 to January 2007. Period 2 is from January 2018 to January 2020. Period 3 is from January 2024 to December 2024.

Source: EPFR Global; Haver Analytics; BOJ.

During the market turmoil in March 2020, banks with higher correlation coefficients immediately prior to the market turmoil tended to experience large valuation losses on securities.[26]

Concluding Remarks

This report reviewed recent developments and changes since the global financial crisis of the presence of NBFIs in domestic financial systems in Japan, the U.S., and Germany. The following are the three main highlights.

First, domestic NBFIs have considerable presence in all three countries. That said, there are differences: the share of NBFIs in the domestic assets account for 50 percent in the U.S., while in Japan and Germany it makes up 20-30 percent; investment funds are a main player in the U.S. and Germany, whereas insurance companies and pension funds play a pivotal role in Japan. Second, the presence of foreign NBFIs in financial systems has risen as investment funds such as those domiciled in the U.S. have increased cross border portfolio investments. Third, the interconnections between domestic banks and foreign NBFIs have been strengthened in Japan and the U.S., through these investment funds.

The Bank of Japan has regularly assessed changes in the size of Japan's NBFIs, along with the relevant background information, as outlined in the Financial System Report. Furthermore, it has been addressing issues surrounding the governance and monitoring of NBFIs through international coordination.[27] With these efforts, it is important to enhance the understanding of how recent developments in the NBFI landscape are affecting the nature of risks inherent in the financial system.

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[1] Following the international definition by the FSB, public pension funds and U.S. government-sponsored enterprises (GSEs) are excluded as they belong to the official sector. Hedge funds which are included in "Other" have a relatively small share in on-balance assets outstanding since off-balance items are excluded.

Domestic hedge funds are not covered in Japan's flow of funds as their asset size is negligible. In Germany, hedge funds are recorded as a part of investment funds, though their asset size is relatively small. On the other hand, hedge funds are included in the household sector in the U.S., and the balance sheet items of hedge funds are released as a supplementary item.

[2] For details of the GMR released by the FSB every year, see Hiroshi Oishi, Eisuke Kobayashi, Yoshihiko Sugihara (2025), "Recent Developments in Non-Bank Financial Intermediation and Initiatives to Enhance Its Resilience," Bank of Japan Review Series, No.2025-E-6.

[3] This report focuses on Germany among European countries due to data availability.

However, some of the findings in Charts 2 and 3 can be confirmed for all Europe: the share of domestic investment funds has been expanding; within the overseas sector, the share of investment funds has increased; European countries make up a large portion of loans from the overseas sector.

[4] Though this report does not further break down investment funds, the GMR by the FSB divides investment funds into hedge funds, MMF, and other investment funds such as bond and equity funds, and summarizes their developments. These funds have their own unique features in terms of leverage, maturity transformation, and liquidity transformation, which could have different implications for the function of financial intermediation and financial stability.

[5] The total amount in Chart 2 corresponds to the outstanding assets (the sum of loan, bond and stock markets) held by domestic banks, domestic NBFIs, and overseas sectors of each country in U.S. dollars, calculated by the exchange rate each year.

[6] The increasing share of Germany's domestic NBFIs could be attributable to the increase in financial assets held by holding companies. According to the Bundesbank's Monthly Bulletin (September 2014), holding companies have increased the purchase of stocks while banks have reduced cross-

shareholdings. Due to a revision of standards in the financial accounts, holdings companies and SPEs were reclassified into other non-banks from non-financial corporations, which has led to an increase in the share of NBFIs.

[7] In the risk assessment, not only the change in share by sector but also the size of their asset holding warrants attention as the size of asset holding significantly varies across country (the top panel in Chart 2), although this report focuses on the share of each sector in different markets.

[8] In the U.S., the issuers of asset-backed securities have kept holding a considerable amount of loan claims, albeit amid a declining share. That said, these include many loans extended by banks under the originate-to-distribute business model.

[9] In the German bond market, domestic investment funds have increased their purchase of corporate bonds issued by domestic firms and expanded financial intermediation. In terms of the liability structure of firms in the euro zone, including Germany, the proportion of financing via bonds, which is calculated by corporate bonds / (corporate bonds plus borrowings) times 100, gradually increased from 12 percent in 2008 to 22.3 percent in 2024, which indicates an increase in direct finance.

[10] For example, U.S. inward portfolio investment accounts for about 90 percent of the U.S. bond holding by the overseas sector.

[11] The inward portfolio investment tends to record the investments from the custodians who manage securities and other assets, not necessarily from the final investors. Therefore, the figures are based on outward portfolio investment from investor countries.

[12] This is on a location basis, which depends on the location of each entity (fund domicile). On the other hand, Chart 7 is based on an ultimate risk basis which identifies counterparties according to the countries in which the ultimate risk lies, rather than the residence of immediate counterparty countries, taking into account the transfer of credit risks.

[13] It is widely known that investment funds domiciled in offshore financial centers such as the Cayman Islands, Luxembourg, and Ireland have received funding from global investors in the U.S. and UK etc. For details, see the following.

Bertaut, Carol C., Beau Bressler, and Stephanie Curcuru, 2019. "Globalization and the Geography of Capital Flows," FEDS Notes. Washington: Board of Governors of the Federal Reserve System, September 6, 2019.

[14] It should be kept in mind that the exposure to domestic NBFIs in Chart 10, based on the flow of funds, does not include loans to domestic hedge funds, while that to foreign NBFIs in Chart 8, based on BIS international banking statistics, includes transactions with offshore funds chiefly led by Cayman Islands-domiciled funds.

[15] The counterparty of repo transactions with Japanese banks for their foreign currency funding mainly consists of foreign banks and the U.S. MMF.

[16] For Japan, trust banks are excluded in order to exclude trust-account-based-positions by domestic investors such as pension funds and investment trusts. For details, see Kaori Saito, Kazunori Hiyama, Kyosuke Shiotani (2018), "International Comparison of BIS International Banking Statistics: Estimates of Positions Excluding Trustee Business," Bank of Japan Review Series, No. 2018-E-2.

[17] The ECB's Financial Stability Review (November 2017) pointed out that the expansion of cross-border claims by European banks has been relatively limited due to balance sheet adjustments and stricter regulations, such as Capital Requirements Directive IV (CRD IV), since the global financial crisis.

[18] For the U.S. and Germany, mutual exposures between domestic banks and domestic NBFIs are based on From-Whom-To-Whom data, which are made based on the flow of funds. As for potential caveats for the U.S., the GSEs are not included in the NBFIs as they fall under an official sector, and domestic hedge funds are not covered.

[19] Even if bonds are excluded for the U.S. and Germany, the assessment does not change qualitatively.

[20] For Japan, only loans are included due to data limitations. Chart 2 excludes loans to financial institutions for Japan, while it includes those loans for the U.S. and Germany.

[21] For Japan, the September 2010 issue of the Financial System Report stated that Japanese banks complemented part of credit provision by life insurers etc., as their risk taking had receded after the global financial crisis. As for Europe, it is pointed out that some firms shifted from loans from banks to issuance of corporate bonds, and non-banks supported their financing. For details, see the following.

Malin Andersson, Laurent Maurin, Desislava Rusinova (2021), "Market finance as a spare tyre? Corporate investment and access to bank credit in Europe," ECB Working Paper No.2606.

[22] For these diverging views, the following survey paper provides a summary.

Stijn Claessens (2024), "Nonbank Financial Intermediation: Stock Take of Research, Policy, and Data," *Annual Review of Financial Economics*, Vol 16.

[23] For instance, the ECB's Financial Stability Review (May 2023) shows that the decline in European sovereign bond holding by foreign funds, which is proxied by U.S. funds, tends to be larger than funds domiciled in the euro zone.

[24] For Germany, the Bundesbank's Monthly Bulletin (May 2020) pointed out that the assets of domestic bond funds increased as domestic insurers purchased these funds.

[25] For details of the methodology, see Yoshiyasu Koide, Yoshihiko Hogen, Nao Sudo (2022), "Increasing Portfolio Overlap of Japanese Regional Banks with Global Investment Funds and Its Financial Stability Implications," Bank of Japan Working Paper Series, No.2022-E-15.

[26] For instance, see Section C of Chapter IV in the October 2021 issue of the Financial System Report.

[27] For details, see Oishi, Kobayashi, Sugihara (2025).

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