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Comment on "Stress Relief? Funding Structures and Resilience to the Covid Shock"

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ABSTRACT

This note discusses the article "Stress Relief? Funding Structures and Resilience to the Covid Shock" by Kristin Forbes, Christian Friedrich, and Dennis Reinhardt. We also discuss some directions for potential future research.

1. Non-Bank financial institutions

In 2011, the Financial Stability Board defined Non-Bank Financial Institutions (NBFIs) as entities that engage in credit intermediation, liquidity provision, and maturity transformation but do not face the same amount of regulatory scrutiny as traditional banks. This includes financial firms such as insurance companies, mortgage lenders, pension funds, hedge funds, and other investment vehicles. NBFIs have arguably enhanced market efficiency over the years. For example, mortgage lenders provide access to credit to individuals that lack access or are perceived to be risky by traditional banks, especially when the credit market is tight. Insurance firms help individuals and firms manage risk from rare events, improving market completeness.

Figure 1 depicts the growth of NBFIs globally over time. Except for the fall in market share during the Global Financial Crisis in 2007–2008, the market share of NBFIs has been steadily growing since 2004. Although NBFI as a sector has grown steadily in the past couple of decades, they might pose systemic and idiosyncratic risks to the economy due to the sensitive segments in which they operate and the interconnected nature of the financial markets. For example, NBFIs such as mortgage brokers, finance companies, and hedge funds were central to the proliferation of subprime mortgage lending before the Global Financial Crisis. The housing market decline and large-scale default of mortgages led to asset fire sales and the fall of numerous NBFIs. There has also been a growing interest from academics and policymakers on studying how NBFIs affect monetary policy transmission. For example, in a speech at the Annual Congress of the European Economic Association, Isabel Schnabel, who serves on the Executive Board of the European Central Bank, argues that non-bank finance has likely broadened the transmission of monetary policy but created new risks for monetary policy.[1]

To assess systemic risk associated with NBFIs, it is crucial to understand how they affect credit provision and risk reallocation across market participants. It is, therefore, essential to study funding structures, which refer to the sources and

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[1] See the speech by Isabel Schnabel, a Member of the Executive Board of the European Central Bank, at the Annual Congress of the European Economic Association: https://www.ecb.europa.eu/press/key/date/2021/html/ecb.sp210824~9ab47b501b.en.html.

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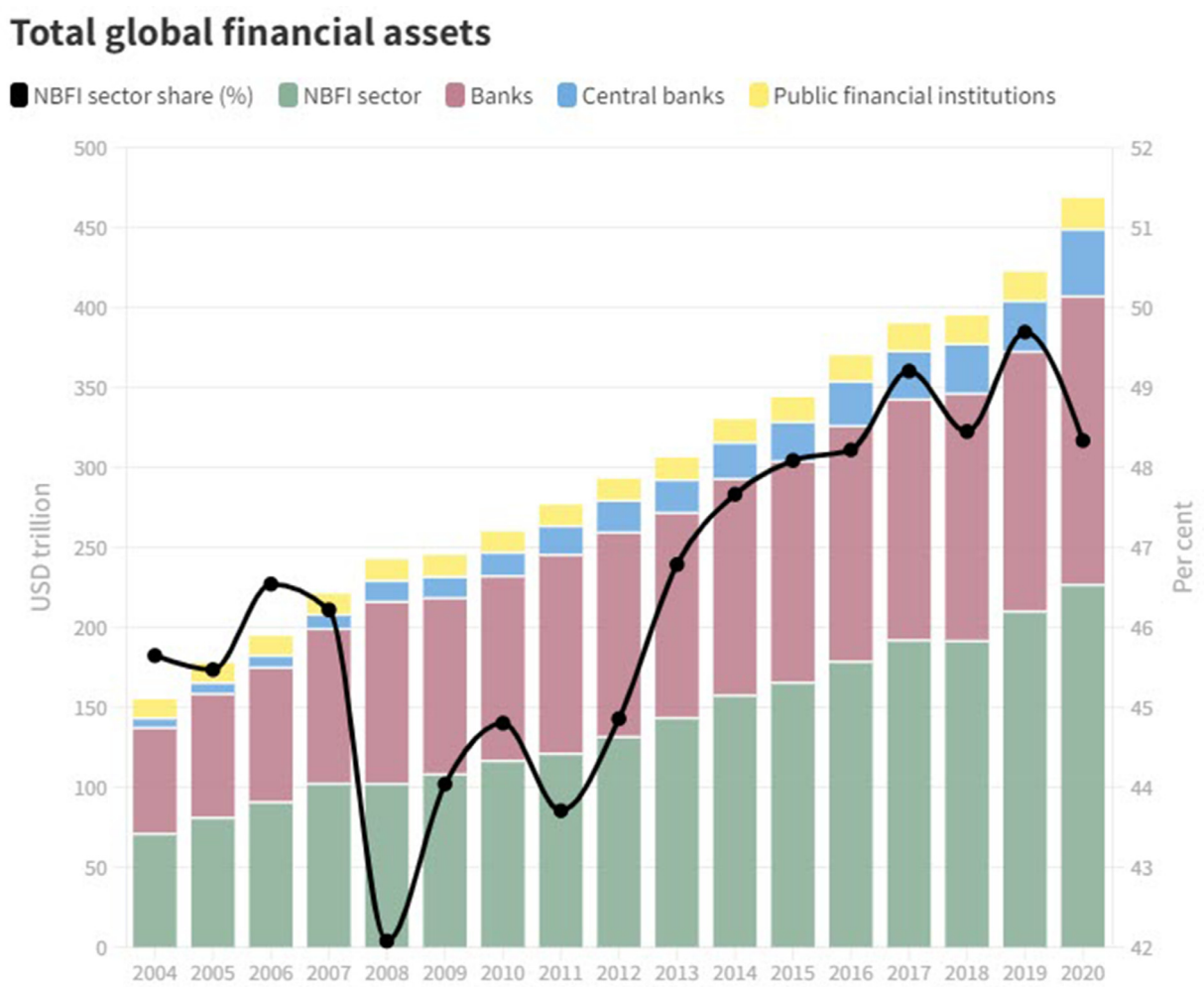

Fig. 1. Total Global Financial Assets. This figure reports the breakdown of all financial assets held by various financial institutions ($USD trillions on the left-hand scale) and NBFI sector share (% on the right-hand scale). *Source*: The table is from the Financial Stability Board website and is available at: https://www.fsb.org/work-of-the-fsb/financial-innovation-and-structural-change/non-bank-financial-intermediation/.

types of funding financial institutions rely on to support their activities. The funding structure is predominantly found in the liability side of the balance sheet. Banks and Non-Bank Financial Institutions (NBFIs) have different funding structures and are subject to different regulatory environments, affecting their financial vulnerability and risk profile. Financial risk is not limited to funding structures only. For instance, the size of assets, type, geography, and nature of business play a role in determining an institution's overall risk.

2. Comments

The paper titled "Stress Relief? Funding Structures and Resilience to the Covid Shock", by Kristin Forbes, Christian Friedrich, and Dennis Reinhardt, investigates the relationship between funding structures and the financial stress of sovereigns, banks, and non-bank financial institutions (NBFIs) during the COVID-19 pandemic. This is an important research question. NBFIs are a fast-growing industry and a significant part of financial services, representing nearly 50% of financial assets globally. Shedding light on the interplay of funding structures, NBFIs, and financial risk is a significant contribution.

The main challenge in their analysis is that funding structures are inherently endogenous, as institutions *choose* how to finance their activities. Hence, determining risks from funding structures requires an exogenous shock that affects only funding structures keeping all else constant. This paper uses the onset of the COVID-19 pandemic from January 2020 to March 2020 as a shock to the financial system to study the relationship between funding structures and financial stress. Financial stress is measured as log change in the Credit Default Swap (CDS) spread.

Their two key findings are: (i) Banks with a higher share of household deposit funding were significantly more resilient than banks that relied on NBFIs for funding; (ii) Banks and NBFIs that relied on US$ funding were significantly less re-

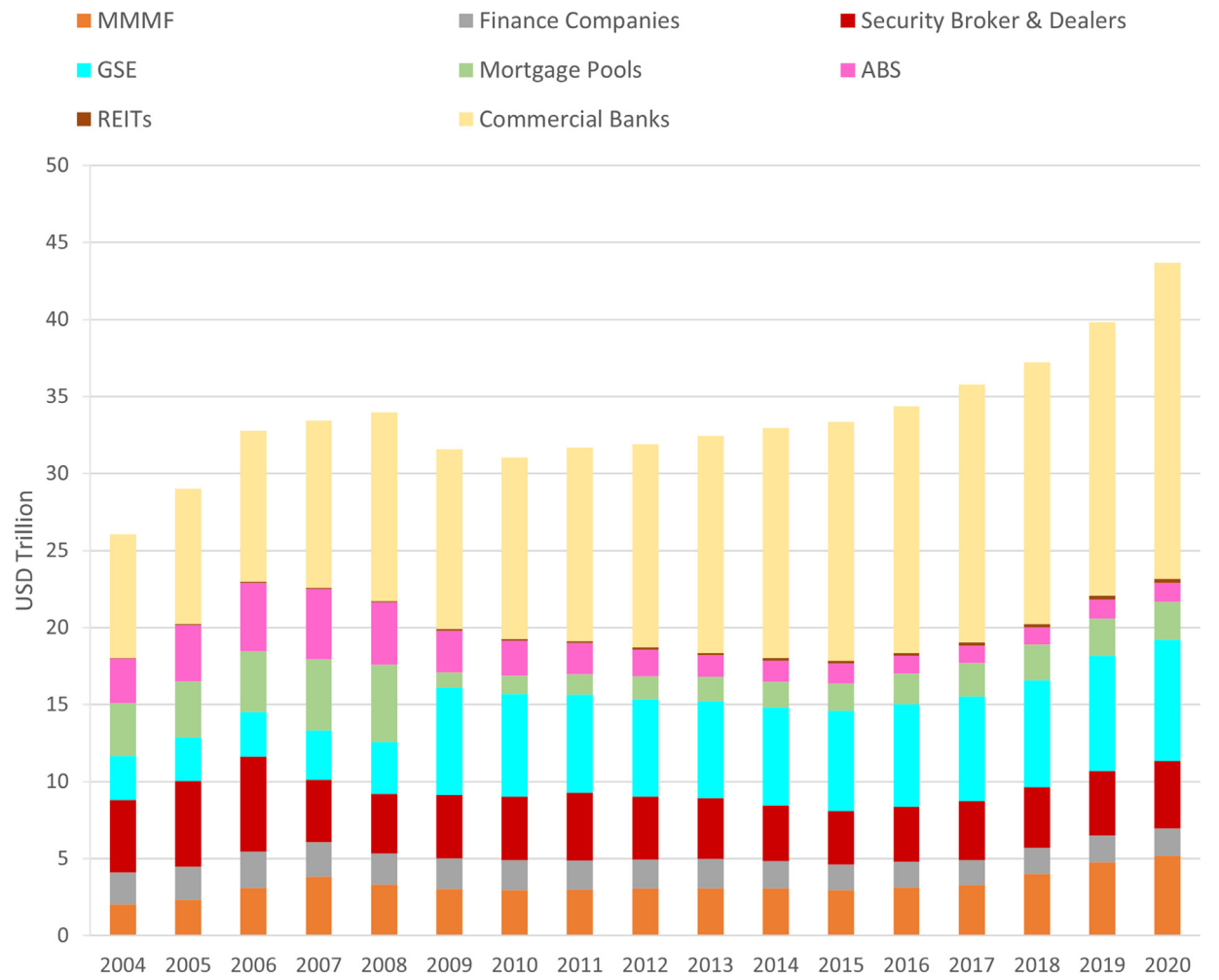

Fig. 2. Total Assets of U.S. Commercial Banks and NBFIs. This figure plots the total assets of commercial banks and Non-Bank Financial Institutions (NBFIs) in the US from 2004 to 2020. Following Özgür (2021), NBFI assets are defined as total assets of money market mutual funds, government-sponsored enterprises (GSE), agency and GSE-backed mortgage pools, issuers of asset-backed securities, real estate investment trusts (REITs), security brokers and dealers, and finance companies. *Source*: The data used is from the Financial Accounts of the US Federal Reserve, variables L.110, L.121, L.125, L.126, L.127, L.128, L.129, L.130, and L.132 available at: https://www.federalreserve.gov/releases/z1/. The Federal Reserve Board reports hedge fund assets held by the household sector; hence, these are not included in this sample.

silient. Although we cannot infer causality from these results, the paper highlights the need to better understand the link between funding structures and financial risk. This will help financial institutions make more informed decisions and help policymakers identify weaknesses and mitigate systemic risks that could adversely affect the real economy.

Their results suggest relying on NBFIs as a funding source could add risk in times of financial and economic stress, such as the COVID-19 pandemic. NBFIs are arguably riskier institutions as they are subjected to a looser regulatory environment. If NBFIs are more exposed to financial stress, then banks relying on NBFIs' funding also become more exposed to financial stress as this type of funding might not be readily available when needed the most. Their second finding indicates that institutions relying more on dollar-denominated funding were less resilient during the COVID-19 shock. This highlights that funding structure is also associated with a potential currency mismatch.

The COVID-19 pandemic was a large, exogenous and unpredictable shock to the economy and financial markets, with unprecedented consequences. In the context of their paper, the onset of the COVID-19 pandemic was a shock to financial stability. Hence, a comparison of how firms' CDS spreads changes due to the COVID shock is informative about how some sectors were better positioned to handle such a financial shock. One of their results is that sectors that relied more on NBFIs funding were less resilient to the shock. The paper documents an insightful pattern between funding structure and risk. However, this approach is not informative about the causal relation between NBFI funding and financial soundness. Institutions *choose* their funding structure, and this choice could be correlated with unobserved characteristics that could confound their results. For example, financial institutions that rely more on FNBI funding but also engage in riskier lending activities would face sharp increases in their CDS spreads.

3. Future research

The paper by Kristin Forbes, Christian Friedrich, and Dennis Reinhardt opens the door to a fruitful and broad area of research. Thinking carefully about an identification strategy to infer a causal relation between funding structure and financial stability is a natural path forward. In the context of the Global Financial Crisis of 2007–2008, Almeida et al. (2011) identify a causal relationship between financial contraction and real firm behavior. They use the proportion of long-term debt scheduled to mature right after Fall 2007 to identify a causal relation. Firms with a significant amount of debt maturing in the Fall of 2007 cut their investments-to-capital ratio by 2.5 percentage points more than firms whose bulk of their long-term debt maturing in 2008. Although Almeida et al. (2011) rely on a common shock to the global economy, long-term debt maturity was chosen years in advance, and it is a decision hardly reversed on short notice. Although their identification strategy is not directly applicable to measure the effects of funding structure on financial stress, it showcases an identification that uses a significant economy-wide shock.

Another approach to further understanding the relationship between funding structures and risk exposure would be to develop a theoretical framework. A model in which banks, NBFIs, and corporates choose their funding structure, taking into account potential hedging needs. Such a framework would help investigate how funding structure may lead to different risk exposures. For example, Moreira and Savov (2017) developed a macro-finance model of shadow banking. In their framework, shadow banks expand liquidity provision and growth opportunities but also increase financial instability.

As highlighted above, the paper focuses on understanding the relationship between funding structures and financial risk during the COVID shock. However, financial risk is not limited to the liabilities of a financial institution. Another area for future work would be to explore the asset side of the balance sheet and jointly study the relation between compositions of assets, including the nature of operations and geography, on financial risk. The authors show promising evidence that the asset side matter for financial risk. In Table 7, the authors include control for banks' NBFIs and US$ assets in their country-sector panel regression. The coefficient on US$ asset is negative and significant in Column 7 ($t - stat = 3.36$). The Federal Reserve provides detailed data on the asset side of banks and NBFIs. Figure 2 shows the decomposition of assets held by banks and NBFIs by various subcategories of shadow banking, including money market mutual funds, government-sponsored enterprises, real estate investment trusts, and asset-backed securities. The picture shows significant variation in the asset composition over time.

Finally, the paper focuses on financial stress measured by log changes in CDS spreads. It would be interesting to measure the relationship between funding structure and other variables as well, both financial and non-financial ones. For example, funding structure should dictate investment decisions (Almeida et al., 2011). The paper also sheds light on the role of uncertainty by interacting funding structure variables with VIX. However, the precise channel through which economic uncertainty interplay with funding structure needs further investigation and is another topic for future research.

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