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FINANCIAL CRISES – THE ROLE OF PUBLIC AND HOUSEHOLD DEBT

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Abstract

This paper explores how public and household debt may contribute to financial crises. High public debt limits the government's ability to respond to economic problems while high household debt reduces consumer spending. We show how both can worsen economic downturns especially when interest rates are rising. High household debt is often a larger concern in developed economies than public debt because economic shocks, like rising interest rates, can quickly impact consumer spending and bank balance sheets. One critical sector is the real estate market (mortgages). In most banking systems credit does not finance new capital investment but the purchase of assets that already exist, especially existing real estate. To address the risk of household debt defaults, we propose a hybrid lending model that combines aspects of asset-based and cash-flow based lending. This hybrid approach offers a more balanced method that can lower the risks linked to common lending practices and form the basis for AI-driven credit assessments.

Keywords: asset based lending, cash-flow based lending, hybrid lending, risk, household debts, financial crisis, mortgages, non-performing loans, AI-driven credit assessments

INTRODUCTION

High public debt and high household debt have the potential to trigger financial crises depending on the broader economic environment (Cecchetti et al., 2011). High levels of public debt can lead to a financial crisis especially when government borrowing becomes unsustainable. Investors lose confidence in a government's ability to manage its debt and

demand higher interest rates, which in turn increases borrowing costs (Reinhart and Rogoff, 2013; Reinhart and Rogoff, 2010). This can lead to a `debt spiral` where higher interest costs lead to more borrowing and by doing pushing public debts to a unsustainable levels. Sovereign default can trigger a crisis as seen in the Greek debt crisis followed by a broader European debt crisis in the early 2010s. High public debt can also undermine confidence in a nation's currency, leading to depreciation. For countries with debt denominated in foreign currencies, this can increase the real value of debt, triggering inflationary pressures that erode purchasing power, reduce investor confidence, and harm economic stability as it was the case during the so-called "SomTam crisis" in South-East Asia in 1997. Excessive government borrowing can crowd out private investment by absorbing available capital, potentially stifling economic growth. This can weaken private sector resilience, reduce tax revenues, and contribute to slower economic growth, making debt harder to repay and exacerbating public debt levels (Reinhart and Rogoff, 2013; Reinhart and Rogoff, 2010).

High household debt often triggers a crisis by restricting consumer spending (Jordà et al., 2016). When household debt is high, a rise in interest rates can lead to widespread defaults on mortgages and/or personal loans. This was evident in the 2008 financial crisis when high levels of mortgage debt and rising interest rates led to mass defaults. High household debt is often tied to asset prices, such as real estate (Cecchetti et al., 2011). A decline in asset prices can lead to negative wealth effects, where households feel less wealthy and further cut back on spending, triggering broader economic contraction. Highly indebted households are particularly sensitive to changes in interest rates. If rates rise, it can increase debt servicing costs, leading to higher default risks. Central banks may find it difficult to raise interest rates, even when inflation is high, because of the risk of triggering a household debt crisis.

High household debt is often a larger concern in developed economies with established financial systems and lower growth rates (Mbaye et al., 2018). For example, high household debt in the United States and many European countries means that economic shocks, like rising interest rates, can quickly impact consumer spending and bank balance sheets. For developing economies high public debt may pose a greater risk, where reliance on foreign-denominated debt is higher. Currency depreciation and interest rate increases can quickly make public debt unsustainable, leading to a crisis, as seen in past crises in Argentina, Turkey, and some Southeast Asian economies. A crisis stemming from public debt typically unfolds over a longer period, as investors gradually lose confidence in a government's ability to manage its debt. It may start as a liquidity crisis that escalates if the government fails to implement measures to reduce debt (Cecchetti et al., 2011). Household debt crises tend to be more sudden, often triggered by economic downturns, interest rate hikes, or asset price collapses. These can

directly affect financial institutions, leading to rapid contagion across sectors, as seen in the 2008 global financial crisis (Mbaye et al., 2018).

While both types of debt present risks, high household debt might currently be a more immediate trigger in many developed economies, given rising interest rates, inflated asset prices (particularly in housing), and a consumer-driven growth model (Mian et al., 2017). In such economies, high household debt exposes the financial system to sudden shocks that can spread quickly. However, high public debt poses a serious risk, especially if interest rates continue to rise, which increases debt servicing costs for governments. In economies where public debt is largely foreign-denominated, this could trigger crises in emerging markets.

In essence, in developed economies, high household debt is likely a more immediate risk.

In the United States of America, the financial sector's share of national income grew from 2% to 6% between 1850 and 1929, with the stock market crash and resulting depression reducing it dramatically and only slowly increasing in importance again to about 4% in 1970 to then more than doubled in the years to 2007, the beginning of the big financial crisis (Haldan et al. 2010). As of recent estimates, the financial sector in the U.S.A. contributes around 8.3% of the nation's GDP. This reflects the considerable growth the sector has experienced over the past decades.

In the United Kingdom, the financial sector grew on average by 4.4% per year from 1856 to 2008, while the real economy grew at less than half that rate, at 2.1%. In the UK, the financial services sector is a significant contributor to the economy, making up about 8.3% to 12% of total economic output, depending on the metrics and inclusions of professional services alongside financial services. In 2021, financial services alone contributed approximately £173.6 billion to the national economy, while broader professional services combined raised the figure to about £278 billion. This industry is concentrated in London, but it also has a notable impact across the UK. The UK remains one of the world's largest financial hubs, competing globally in areas like cross-border banking and asset management (House of Commons Library, 2022).

Previous research has shown that in particular two financial activities contributed most to the remarkable growth of the financial sector, (1) providing credit to the economy, in particular to private households, and (2) asset management activities which in this definition includes trading activities (Greenwood and Scharfstein, 2013).

The author selected three broad indicators to analyse private and public debt:

- household debt to income
- private sector debt to GDP
- public debt to GDP

The increased provisioning of credit to private households is well in excess of such households increase in income. As the following table demonstrates, in all advanced economies the private sector became dramatically more leveraged. Private households, and in some countries also businesses, owed much more debt relative to their income (Statista, 2024).

Table 1: Household Debt in percent of net disposable Income (most recent data from 2023)

Country	Household Debt (% of Net Disposable Income)
Denmark	278%
Netherlands	242%
Norway	213%
Australia	202%
Sweden	188%
Canada	182%
South Korea	181%
United Kingdom	147%
United States	134%
Finland	129%

Source: OECD Data https://data.oecd.org/hha/household-debt.htm

These figures show a significant debt-to-income ratio in these countries, with Denmark and the Netherlands at particularly high levels. This trend is often attributed to factors like real estate prices and ease of credit, which vary by region.

While levels are quite different in different countries, the increases are nevertheless dramatic. In the United Kingdom that level was a mere 15% in 1964 but reached 95% in 2007 and is now close to 150%, see Table 1.

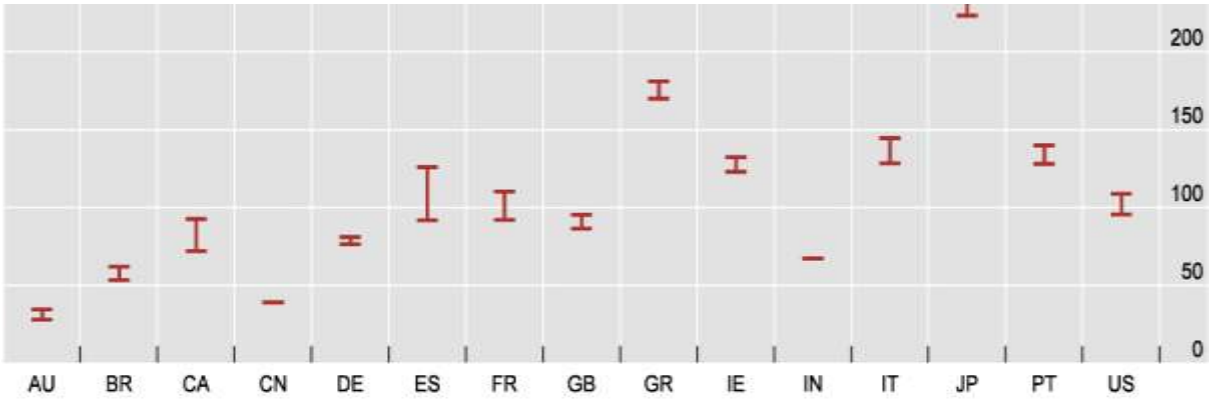
The global private sector debt to GDP ratio increased steadily and for the last 10 years is hoovering between 140% and 150%.

In Spain the debt owed by the private sector relative to GDP increased from 80% in 1980 to 230% in 2007 but since went down (Bank for International Settlements, 2024). The picture in Asia is similar; in South Korea private sector debt increased from 62% in 1970 to 155% before the Asian financial crisis of 1997, it is now even higher at 181%. In China, that ratio has risen from 124% at the beginning of 2008 to now 180% of GDP. China's private sector debt relative to GDP remains high, driven by significant borrowing among households and corporations, especially within real estate and industrial sectors. As of 2024, domestic credit to

the private sector in China is roughly 180% of GDP. This ratio reflects sustained private borrowing despite recent regulatory efforts aimed at deleveraging and stabilizing the financial system. Non-financial corporate debt contributes notably, holding steady at around 117% of GDP. Household debt, on the other hand, is about 62% of GDP, as the government continues to support property financing despite broader economic reforms.

This high level of private sector debt has implications for economic resilience, with concerns around the real estate market and household consumption. Economic analysts suggest that reducing this debt load would require stronger growth in household income and more robust safety nets to reduce the population's reliance on debt for consumption and housing.

Public debt has steadily increased and reached levels that are above 100% in some countries, see Figure 1.



Ranges represent the minimum and the maximum values of general government debt in 2013 across the data sources listed below. AU = Australia; BR = Brazil; CA = Canada; CN = China; DE = Germany; ES = Spain; FR = France; GB = United Kingdom; GR = Greece; IE = Ireland; IN = India; IT = Italy; JP = Japan; PT = Portugal; US = United States.

Figure 1: Public Debt as percentage of GDP at the end of 2023

Source: IMF, World Economic Outlook- OECD, Economic Outlook- OECD, Financial Accounts- OECD, Public Sector Debt- World Bank, Public Sector Debt- Eurostat, Quarterly Financial accounts for general government- Eurostat, Quarterly government debt

Japan's public debt has long been among the highest in the world, and as of 2023, its debt-to-GDP ratio is estimated to be around 260%, see Figure 1. This level, which has risen incrementally over decades, is largely due to prolonged government spending aimed at economic stimulus and welfare funding to support its aging population. Despite this high debt, Japan's unique financial situation, including domestic ownership of a significant portion of its debt and low interest rates maintained by the Bank of Japan, has allowed it to manage this substantial burden without facing a debt crisis similar to those experienced by other highly indebted nations.

Japan's debt is primarily held domestically, with the government relying on bonds that are mostly bought by Japanese institutions and citizens. This differs significantly from countries with high levels of foreign debt, providing Japan some insulation from external economic pressures, though concerns over sustainability continue to be a topic of policy discussion as debt levels grow.

Literature on economics or financial inter-mediation usually describe the role of banks to take deposits from households and lend money to businesses, allocating capital between alternative capital investment possibilities (Gertler et al. 2009). The majority of these publications focus on the impact of credit flow to business and entrepreneurs (Townsend 1979; Rajan et al. 2004; Levine 2005).

In reality, in most banking systems in modern economies credit does not finance new capital investment but the purchase of assets that already exist, especially existing real estate. In 2012, 65% of total bank lending in the United Kingdom was one in the form of residential mortgages: (Bank of England Quarterly Bulletin Q3/ 2012). In its 2016 Q1 report the Bank of England reported a total of £1.313 trillion Household Loans to Individuals out of which £1.155 trillion were mortgages with a residential loan to Income Multiple of 1.89. As of the latest data from the second quarter of 2024, total residential mortgage lending in the United Kingdom reached an outstanding balance of approximately £1.66 trillion. The GDP of the UK stands at around £2.5 trillion which shows the vulnerability to household defaults especially a fall in real estate prices.

There are even countries with higher mortgage shares of the portfolio such as Australia, see Figure 2.

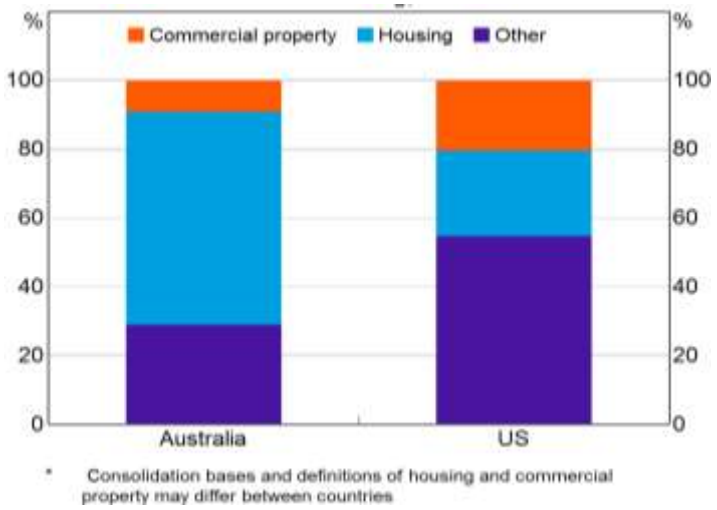


Figure 2: Share of Total Lending Australia and USA in 2023 (own compilation)

Sources: APRA, FRB, RBA

Real estate accounts for the majority of wealth in advanced economies. Mortgage lending is seen socially useful and banks like it as it appears an easy and safe thing to do. But only if credit is used to finance new capital investment that does generate additional income flows such new debt is becoming sustainable.

The categories above are not precise when it comes to deriving which category for bank lending is to fund capital investment, consumption or the purchase of existing assets. Some portion of `business non-real estate` lending will inevitably also be used to buy existing assets, in particular insofar as private equity firms are involved who essentially leverage up existing companies to create higher returns at the expenses of increased risk. On the other hand, within the category `residential mortgages` there will be a small portion of lending that is not used to purchase existing assets but new capital investments to improve existing homes. Most of real-estate lending is Asset-Based (ABL) and not Cash-Flow-Based (CFBL) (Capstone Capital, 2022).

Scheinberg (2009) analysed liquidity crises faced by the banks and other financial institutions and related them to ABL because major economic powers struggle to find appropriate policies to ease liquidity crises and restore confidence. Dibenedetto and Peterson (2014) identified the three main possible pitfalls of ABL as: Collateral Valuation (e.g., obsolescence), Monitoring (e.g., no periodical visits), and outright Fraud. Nonetheless, there is increased popularity of ABL in Europe because of high yields; performance of ABL facilities offered for example in Great Britain are similar to those in the U.S.A. (Rooney and Litvak, 2023). Hartzog and Perry (2014) suggest an early warning system in form of rules based on the type of borrower, the type of business and type of credit products. However their model does not include macro-economic parameters. Niinimaki (2016) argues that project quality and bank-borrower geographical distance play a role in the sense that local banks carry less risk when lending to local firms and households. Favale (2007) examined the problems associated with ABL and suggests a hybrid lending structure that relies less on specific collateral and more on participated cash-flow and potential values of other assets such as patents, trademarks, and franchise values.

Our research looks into lending practices, see Figure 3.

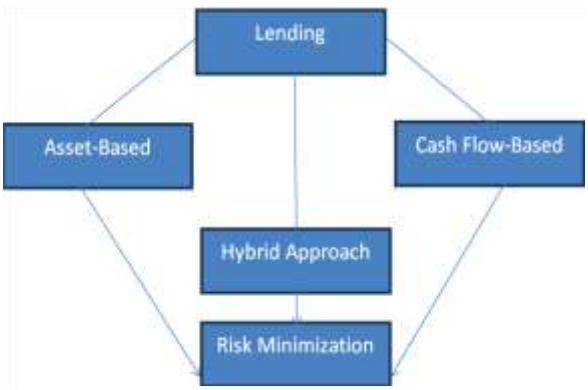


Figure 2: Research Framework

LITERATURE REVIEW

In this research, we looked at the risk implications of ABL as well as CFBL. With our hybrid approach we aim at minimizing the risk. As we were able to observe in the Dutch tulip bubble of 1638, credit can finance the purchase of many different types of existing assets. But by far the most lending against existing assets is against real estate, and lending against already existing real estate represents the majority of all bank lending in most advanced economies (see previously displayed Figure 2).

As research has shown, this is a relatively new phenomenon. Across advanced economies real estate lending only accounted for about 30% of all bank lending in 1928. By 1970, it has slowly increased to 35%, but by 2007 it was approaching 60% (Jorda et al. 2014) and has since not come back to lower levels.

During the past 40 years, the ratio of wealth to income has seen a dramatic increase, with the ratio growing from about three times in 1970 to 5-6 times in 2010, driven largely by the increase in the value of housing (Picketty 2014).

For example, in France and the United Kingdom, housing accounts for more than half of all wealth, and the increase in the housing wealth relative to national income explains 90-100% of the increase of total wealth/income ratio. In France, housing wealth relative to GDP grew from 120% to 371%, and in the UK from 120% to 300% (ECB, 2024). Not included in these figures is the increase of wealth attributable to commercial real estate.

According to the ECB (2024) housing wealth accounts for around 50% of the total wealth of households. However there are national differences. In Germany it accounts for 38% and in Slovakia for 74% of total wealth.

The average New Zealand household was worth $650,000 in 2023 (Statistics New Zealand, 2024). The most-valuable asset was the house which made up 59% of all assets. Housing also contributed the most to household debt levels with over 60% of liabilities.

For the last years, real estate prices in the UK in general and London in particular have steadily increased until the financial crisis in 2007. It took six years to recover to the pre-crisis level, see previously displayed Figure 4. In 2024 the average price stands at £800,000.

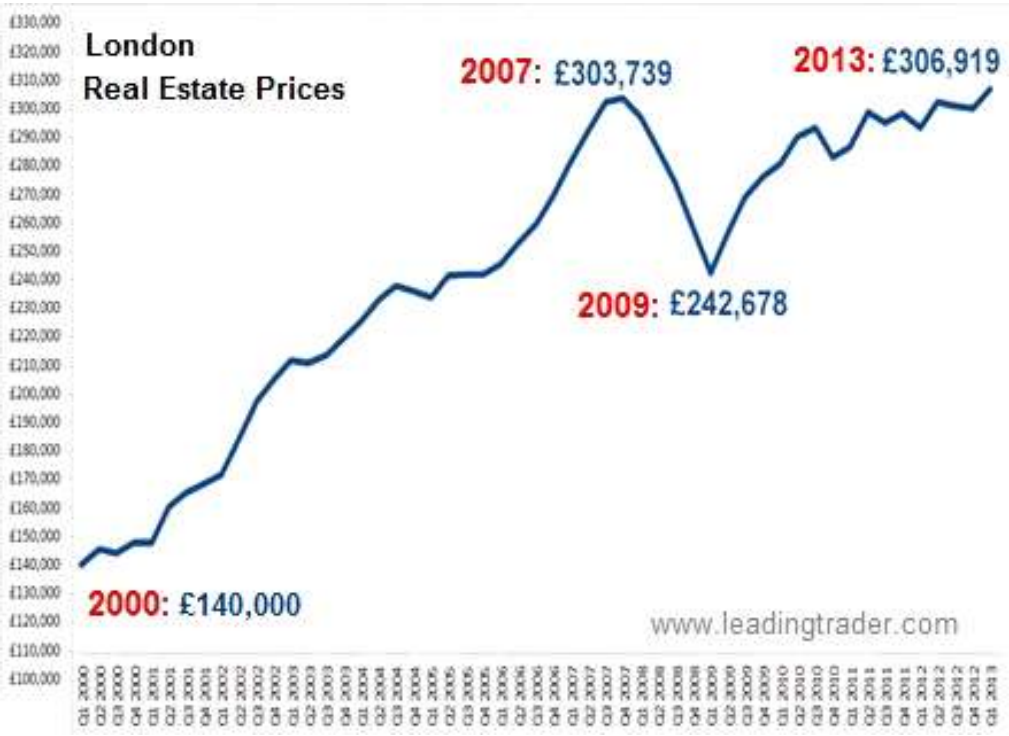


Figure 3: London Real Estate Prices impacted by financial crisis

The median deposit requirement for first time buyers in London has remained steady at around 25% over the years. In other words, a decrease in value by 25% will bring half of the buyers in serious trouble.

The observed increases in the price of the average London home have far exceeded growth in individual earnings. This has led to house prices which were almost 10 times median earnings in London in 2023, compared to about 4 times in 1997.

Much of this increase in value is not attributable to the constructed value of the buildings but to the value of the land on which the buildings sit. For advanced economies, 80% of the house price increase can be attributed to the latter, with only 20% to the increases in the constructed value (Knoll et al. 2014). The high income-elastic demand is meeting a supply that is near fixed, at least for location ally specific housing, i.e. real estate in the most desired parts of town.

If credit is intended to finance productive, i.e. cash flow generating investments it will be affordable as such future income can be used to service the debt contract. In such form, credit is a useful tool to accelerate growth in an economy. But it can also produce cycles of over-investment causing wasting of real resources but more importantly a debt overhang problem (Hayek 1931/2008). Cycles of credit-financed over-investment have been features of capitalism throughout its history, from the railway booms of the nineteenth century in the U.S.A. to the real

estate building booms in Ireland and Spain in the 2000s. The system changed from one in which credit was `hedge` in form (financing assets with debt that could be repaid out of the income generated by that investment) to a `speculative` system, in which new credit supply was essential to finance the repayment of existing debts (Minsky 1986/2008). For this system, Minsky also used the word `Ponzi`. The resulting misallocation of resources, i.e. workforce will result in high unemployment as a consequence of the credit cycle turning. The other consequence is the debt overhang effect.

Taffler (2011) explained Ponzi schemes by emotional finance because it highlights the process of group psychology, and acknowledges that markets have behaviors of their own that are separate from the individuals who invest in them.

In real estate as an asset class, this issue is especially pronounced. Unlike 50 years ago most bank lending (or lending through capital markets where those fulfill the role of main lender such as in the United States of America) is now against the purchase of real estate assets. In part that may reflect the increasing share of real estate in total wealth or the valuable social and political role in allowing citizens to become homeowners at an earlier stage of their lives. But more importantly it reflects a bias for banks to lend against real estate as it is perceived to be a `safe` form of lending (and one that requires substantially less operational cost and business judgment).

Lending against corporate investment requires difficult and expensive assessment of the validity of the proposed business plan and the resulting cash flows required to service the debt contract as the necessary assets to execute the business plan have little or no market value to third parties. Real estate assets, especially residential real estate assets usually have value for multiple alternative users and therefore have a market value. If a debt contract secured by real estate assets can no longer be served it can be repaid out of the disposal of the real estate assets used as collateral.

But lending against real estate and in particular against real estate whose supply cannot be easily increased generates self-reinforcing cycles of credit supply as more credit supply produces rising real estate prices, which in turn increase both the net worth and the confidence for both investors (= borrowers) and lenders. With real estate prices rising actual loan losses will reduce, increasing stated profitability and hence through retained earnings the capital base of a bank and as a result its ability to provide more loans. With real estate assets increasing in value the all-important `loan-to-value` (LTV) covenant also improves the perceived level of security or safeness of the lending. Increasing LTV ratios also enables buyers of real estate assets to borrow more and even holders of real estate assets to increase borrowing against an existing real estate assets, with the additional funds used for consumption. As a result, real estate asset

prices and credit move together, and the interface between an infinite capacity and an inelastic/constrained supply form the very essence of financial instability in modern economies, leaving the economies vulnerable to financial crisis and post-crisis recession as in a down-swing falling asset prices reduce both the net worth of buyers and confidence levels of both lenders and borrowers, reducing credit supply and demand leaving the economy with a debt overhang (Turner, 2016).

Current accounting/tax rules allow only to provision for actual loan losses, not expected loan losses and hence adding another self-reinforcing parameter.

It is this debt overhang that is the root cause for the problems most economies are facing today, and as this paper argues by focusing solely on fixing what appeared to be a crisis of the financial system and especially the bank's policy makers and central bankers have focused on an effect, not the cause of the economic crisis. And some might argue that while some immediate action to restore banks' solvency and liquidity was necessary, to provisioning of virtually unlimited funding at close to zero cost has done not only little to curb the economic crisis, they may have inadvertently added to the underlying issue.

As Mian and Sufi (2014, p.7) described in House in Debt, "economic disasters are almost always preceded by a large increase in household debt. In fact, the correlation is so robust that it is as close to an empirical law as it gets in macroeconomics."

This is a known but largely overlooked correlation. Japan is a good example. There, a credit policy was used to achieve high levels of investment and accelerated economic growth during the four decades of the 1950s to the 1980s. From the early 1980s onwards, banks were increasingly allowed to enter real estate lending, and many non-financial companies became involved in investing in real estate parallel to their core industrial or service activities. The result was a massive credit-fueled real estate boom until 1990 when the bubble burst, causing commercial real estate prices to drop by as much as 80%. Real estate investors, and in particular companies, who have borrowed heavily to finance those investments had to service large portions of the debt contracts out of operational cash flow, cutting investments to enable them to deleverage. Despite interest rates being lowered to almost zero, those who invested in real estate on a highly leveraged basis became net savers, and low interest rates were rendered ineffective to stimulate investments. The result was two decades of slow growth and gradual price deflation (Koo, 2008).

The lessons from Japan's experience were widely ignored by Western economists, regulators, central bankers and policy makers, describing Japan as different and exceptional with few if any general implications (Trow, 2010). But as an analysis of Jorda, Schularick and Taylor (2014) has shown debt overhang effects resulting from mortgage lending have become

more important with banks becoming more biased to real estate lending, and `recessions` tend to be considerably deeper and the recovery much slower when the preceding boom saw a strong expansion of mortgage debt irrespective of whether there was a financial crisis involving the failure of one or more financial institutions (Jorda et al., 2014).

As a result of the financial crisis, regulators and central bankers implemented a set of measures that on the one hand restored market confidence in banks by introducing asset quality reviews and most importantly increases in required bank capital ratios, while at the same time trying to restore credit growth viewed as being essential to drive economic recovery. Stress tests are another useful tool (Khammassi et al., 2020). While the former clearly worked, albeit at the expense of additional restrictions on credit growth as banks cut their lending in order to improve balance sheets and achieve the new regulatory objectives, the latter did not. Monetary policy has basically reduced itself to the provision of cheap credit supply, but the demand was not there because borrowers were already over-leveraged. As Richard Koo (2008) already presented for Japan in 2008, corporate borrowing remained depressed despite loans being offered at close to zero interest rates. When the ECB provided its lending scheme in 2014, offering to lend money to banks at only 0.1% a year for four years, only EUR 80 billion was taken up out of the EUR 400 billion made available.

As is often the case, the financial crisis of 2007/2008 had many triggering events and even more institutional flaws/policy shortcomings. And it is certainly nonsensical to formulate the questions of the causation of cyclical fluctuations in terms of guilt and to single out e.g. the banks as those `guilty` (Hayek et al., 1933). There are many contributing factors whose influence must be analyzed and the conclusions reflected in the policy making, including but not limited to:

- The unrestricted ability by banks to create money instead of the dampening effects of a minimum reserve requirement (Jackson et al., 2013) and much higher capital ratios (Admati et al., 2013).
- Accounting rules which require banks to book loan loss provisions only if and when a specific loan is impaired rather than to require banks to reserve the expected losses embedded in their loan portfolio.
- Accounting rules which allow banks to structure loans as securities, albeit being highly illiquid and de facto not tradable, and by booking those exposures in the trading book instead of the banking book to dramatically reduce the regulatory capital requirements.
- The application of a credit methodology which is based on a model that is uniformly used amongst all participants in financial markets [*lemming effect*], and which by definition

only yields the result for expected events, not the unexpected ones (which are however those who routinely trigger crises (Hudson et al. 2004)

Furthermore, this paper does not deal with the available instruments to reduce the debt overhang described above, but to address one significant policy measure the at least dramatically reduce the risk for another boom-bust-cycle in financial markets, the ability to lend against market value of assets versus the restriction to lend only against future cash flows that will be able to service the debt contracts.

As demonstrated above the potentially limitless supply of bank credit and the highly inelastic supply of real estate and in particular location-specific land and the resulting credit and real estate price cycles (in London, property prices are approx. three times their level of 1990 (Lloyds Banking Group, Halifax House Price Index, Historical Price Data, 2024), while in Japan they are at a quarter (Japan Real Estate Institute, 2024) are not only a part of financial instability or at its core, it is close to the whole story. And because of the underlying forces described above rising prices for real estate will continue to be a predominant driver for wealth creation and account for an increasing share of total wealth. In parallel, real estate lending and in particular residential mortgage loans will increase in share. And this will inevitably result in the ratio of real estate wealth to income to increase further.

Higher wealth to income ratios also result in any given percentage change in wealth which will be larger relative to income and increase the extent to which borrowers react to falling asset prices through reduction in consumption and investment.

Five features of debt contracts, the way they are structured today, make them potentially dangerous:

1. Debt contracts have a high likelihood of one specific return; per-specified interest rates and repayment in full. It therefore tends to induce `local thinking`: during good times investors assume that a full payout is not just likely but certain, excluding the consideration of a possibility of a loss (Gennaioli et al., 2012). As a result many debt contracts may be entered into which owed their very existence to neglected risk assessment.
2. Because of that, once lenders become aware of the inherent risks they are unwilling to lend new money which is a typical pattern of behavior. Periods of lending provided on excessively easy terms are followed by periods when debt finance is denied at almost any price.
3. In Ireland credit supply grew 20% p.a. from 2004 to 2008 only to contract by about 1.3% between 2009 and 2013 (BIS Statistics, 2014). These sudden stops are harmful in credit markets because of the need for credit contracts to be rolled over at maturity. Unlike

equity debt is not permanent capital and is therefore much more susceptible to falls in investor confidence.

4. As debt contracts generally do not specify how losses would be shared between borrower and (various groups of) lenders bankruptcy proceedings will lead to large administrative costs, disruptions and typically the necessity to sell assets a distressed values, amplifying the losses.
5. If asset prices are falling, not only will confidence drop further but also covenants are being breached if a drop in value of the assets securing a loan causes the loan-to-value level to exceed contractually agreed levels, forcing the borrower to either provide additional collateral or repaying the debt in a very short time frame. In times of contracting loan volumes and falling asset prices both companies and private households are less able and willing to purchase assets with credit, putting even more pressure on asset prices.
6. Finally, such falling asset prices can produce a deflationary debt overhang effect. Borrowers becoming concerned that they are overlevered which will cut consumption and investments in order to reduce their debts and insure solvency, but the combined impact of this behavior by numerous households and companies depresses aggregate demand, economic growth, asset prices and confidence (Turner, 2016).

The nature of debt contracts, being powerful drivers of financial instability was first described in 1933 by Irving Fisher explaining the causes for the Great Depression (Fisher, 1933). The financial crises of 2007–2009 (triggered by the collapse of the U.S. housing bubble), the European Sovereign Debt Crisis 2010–2012 (notably Greece), and COVID-19 Pandemic Economic Crisis 2020–2021 and the resulting recessions are a repetition of that experience.

IMPLICATIONS

To dampen the affects of these dynamics and to lessen the effects on any future cyclical lows, regulators have in principle three tools at their disposal. They can put constraints on lending volume though an increase in capital requirements for real estate lending and through stricter loan-to-value covenants. But both will only dampen the growth curve and not provide any real hedge should the cycle turn.

A more efficient measure would be to decouple the lending volume from asset prices and their developments and introduce strict limits on loan relative to disposable income, or LTI limits. Or in other words, lending decisions should not be based on the value of assets as a collateral but based on free cash flow available for debt service.

Such constraints will be controversial, especially since home ownership and the ease of obtaining home ownership especially for people with limited initial wealth have been high on political agendas in many countries, not only but especially in the United States. But the cyclical nature of real estate prices and related lending will over the medium term result in large losses of wealth especially for those with lower income and other wealth (Mian et al., 2014).

A hybrid approach that combines both asset-based lending (ABL) and cash flow-based lending (CFBL) is recommended for real estate financing (Hybrid approach). The real estate property can serve as collateral (similar to ABL) in combination with the borrower's income generated from the property (CFBL). For example, the Debt Service Coverage Ratio (DSCR), which measures cash flow relative to debt obligations, should be the leading parameter to ensure adequate income. For example, a loan could be structured with a larger principal based on asset valuation, but interest rates might be linked to the reliability of incoming cash flow.

Same applies to a Hybrid Approach for Private Housing. The house itself serves as collateral, and its appraised market value is a core component in determining the maximum loan amount. Then the bank evaluates the borrower's income and other financial commitments. The focus should be on debt-to-income (DTI) ratios. By focusing on both property value and borrower income, this hybrid approach enables private homeowners to finance their property purchase with flexibility. It also provides the lender with added security, making it a balanced solution for both parties.

FURTHER STUDIES

Future research should explore the long-term financial stability of borrowers under each lending model, comparing default rates and economic resilience. Additionally, future research could investigate how emerging financial technologies, such as blockchain and AI-driven credit assessments, impact the balance between ABL and CFBL in real estate financing. Comparative studies across different economic environments and regulatory landscapes could provide insights into which lending model is more sustainable and beneficial for various stakeholders, including lenders, investors, and policymakers.

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