

Asset Encumbrance and Bank Risk: Theory and First Evidence from Public Disclosures in Europe

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We document that overcollateralisation of banks' secured liabilities is positively associated with the risk premium on their unsecured funding. We rationalize this finding in a theoretical model in which costs of asset encumbrance increase collateral haircuts and the endogenous risk of a liquidity-driven bank run. We then test the model's predictions using a novel dataset on asset encumbrance of the European banks. Our empirical analysis demonstrates that banks with more costly asset encumbrance have higher rates of overcollateralisation and rely less on secured debt. Consistent with theory, the effects are stronger for banks that are likely to face higher fire-sales discounts. This evidence acts in favour of the hypothesis that asset encumbrance increases bank risk, although this relationship is rather heterogeneous.

Asset encumbrance refers to the existence of bank balance sheet assets being subject to arrangements that restrict the bank's ability to transfer or realise them. Assets become encumbered when they are used as collateral to raise secured funding or in other collateralised transactions such as asset-backed securitisations, covered bonds, or derivatives. In stressed situations, high levels of asset encumbrance can impede obtaining funding and affect the liquidity and solvency of a bank. Since bank failures can have substantial negative externalities, understanding the effects of asset encumbrance on bank default risk is crucial for financial stability. The unprecedented level of liquidity support seen after the Covid-19 crisis is likely to increase asset encumbrance levels in the coming years, and therefore it is important that the trade-offs involved in constraining banks' asset encumbrance levels are better understood.

Asset encumbrance is the product of the level of secured funding chosen by the bank and its overcollateralisation. In a bank's private decision, optimising asset encumbrance involves a trade-off between a bank's ex-post ability to withstand liquidity shocks and lower ex-ante funding costs associated with secured finance. Thus, higher levels of asset encumbrance reduce both the amount of unencumbered assets that the bank can use to meet sudden liquidity demands and the pool of assets that become available to unsecured creditors under insolvency, an effect coined as structural subordination. But by encumbering assets, a bank may also reduce its overall cost of funds and liquidity risks because posting collateral brings in cheaper and more stable secured funding – this is the stable funding effect of asset encumbrance. This paper presents a theoretical model exploring this trade-off and provides empirical evidence on the determinants of asset encumbrance and its relation to the bank risk premium.

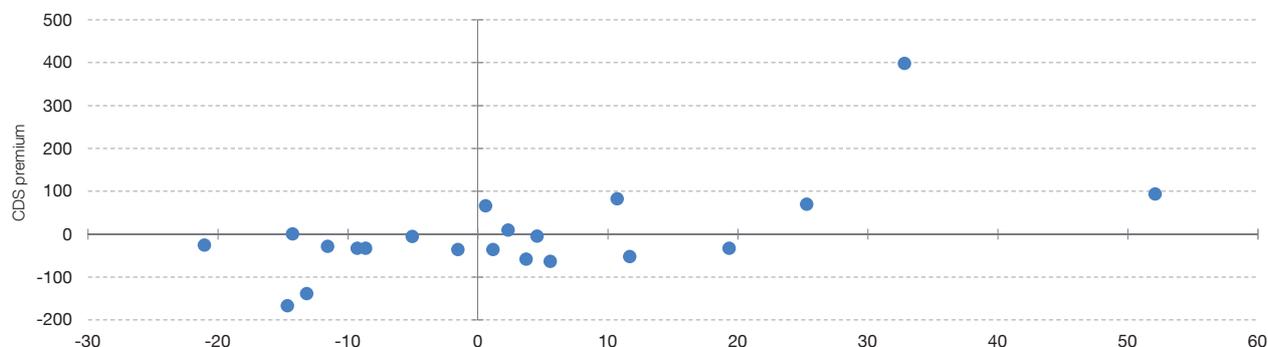
The figure below illustrates a positive relationship between CDS premia on subordinated debt of European banks in 2015 against overcollateralisation levels of their secured liabilities.¹ The figure documents that banks with higher levels of overcollateralisation of their secured liabilities tend to face higher cost of unsecured funding.

We rationalize the relationship observed in the above Figure in a theoretical model in which encumbered assets have higher liquidation costs.² These costs may represent value destruction stemming from weaker monitoring incentives of secured investors or higher price impact in fire-sales of collateral. Additionally, encumbrance costs may also include legal costs and transaction costs of “unencumbering” collateral or transferring assets to the secured creditors in case of default. The costs of asset encumbrance determine

- ¹ To ensure that the quality of banks' assets and their capital do not drive this relationship, we orthogonalise both the overcollateralisation levels and CDS premia with respect to banks' credit ratings and leverage.
- ² Our paper contributes to a growing literature on bank asset encumbrance and its implications for financial stability (Anhart et al. (2019), Gai et al. (2013) and Eisenbach et al. (2014)). Empirical analysis of banks' asset encumbrance is scarce. Garcia-Appendini et al. (2017) document a positive relationship between the costs of unsecured debt and asset encumbrance in the context of covered bonds issuers. Finally, we contribute to the literature on law and finance (see, for instance, Beck et al. (2003)) by analysing bank creditor rights protection and financial stability linked by banks' choice of secured financing.

Figure 1

BANK CDS SPREADS ON UNSECURED FUNDING AND OVERCOLLATERALISATION OF SECURED DEBT



NOTE: Vertical axes mark bank CDS spreads on subordinated liabilities. Horizontal axes mark overcollateralisation of secured funding. Both CDS spreads and overcollateralisation are centered and orthogonalised with respect to the banks' credit ratings and leverage ratios. The sample includes European banks with non-missing CDS quotes and asset encumbrance disclosures. CDS spreads (on 5 year "modified-modified" restructure Euro-denominated contracts) are from Datastream and averaged over the 2015 daily values. Overcollateralisation (net, in percents) is calculated using the 2014 asset encumbrance disclosures as the ratio of encumbered assets to the matching liabilities.

which of its effects – the structural subordination or stable funding – dominates and, consequently, whether bank risk increases or decreases with the level of secured financing. Hence, we show that, when a bank faces high encumbrance costs, the negative structural subordination effect dominates the positive impact of a run-prone secured debt, and the relationship between encumbrance and bank risk premium can be positive.

To provide additional insights into which case is empirically relevant, we test model's predictions in a cross-section of European banks spanning more than three hundred institutions from nineteen countries. To do this, we build a novel dataset using the information provided in the asset encumbrance disclosures published in 2015 by European banks, following a set of harmonised definitions provided by the EBA. We interpret encumbrance costs from the moral hazard perspective postulating that more opaque banks acting in an environment with weaker creditor rights protection are likely to have higher encumbrance costs.

We show empirically that the encumbrance costs affect the level of secured funding both directly and via collateral haircuts. Hence, more opaque banks or banks

headquartered in countries that limit creditors' rights for bankruptcy filing tend to face higher rates of overcollateralisation. Accordingly, these banks tend to rely less on secured funding in their capital structure. Furthermore, encumbrance costs affect the chosen level of secured financing directly, including when conditioning on collateral haircuts. This evidence acts in favour of the hypothesis that asset encumbrance increases bank risk. Finally, consistent with the theory, we show that the direct effect of encumbrance costs is stronger for banks that face potentially higher fire-sales discounts. This empirical fact implies that the impact of encumbrance costs on bank risk is rather heterogeneous.

The analysis suggests that a state-contingent regulation of banks' encumbrance ratios may be necessary to minimise liquidity risks.

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