COMMITTEE ON CAPITAL MARKETS REGULATION

EXAMINING THE RELATIONSHIP BETWEEN BANK LENDING AND PRIVATE CREDIT

SEPTEMBER 2025

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The Committee would like to thank the Managed Funds Association for its support of this research.

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I. Introduction

Economic growth in the United States is fundamentally linked with strong and thriving credit markets.[1] Private credit, structured through nonbank financial intermediaries such as private debt funds, has emerged as a material component of the U.S. credit landscape. Over the past decade, the U.S. private credit market has increased at an annual rate of 14.5%,[2] reaching $1.71 trillion as of the first quarter of 2025.[3] Middle-market firms in particular rely on private credit, with the International Monetary Fund (the "**IMF**") estimating that the median private credit borrower in the United States possesses assets of $500 million.[4] Thus, private credit plays an increasingly important role in U.S. macroeconomic growth.

The significant growth of private credit over the past decade has prompted many questions, including the relationship between private credit and the bank lending market, particularly as its growth has coincided with the U.S. regulatory response to the 2007-2009 global financial crisis that led to a significantly more stringent regulatory landscape for U.S. banks.[5] One issue raised over the past several years is that the rise of private credit largely reflects an outflow from banks, driven by the costs associated with increased capital and liquidity requirements imposed on banking institutions. This raises the question as to whether the growth of private credit represents a new source of financing independent of bank lending or a form of regulatory arbitrage, with borrowing migrating from the banking sector to the nonbank direct lending sector to avoid bank regulatory costs.

While private credit does not necessarily represent a one-for-one replacement for bank loans, given the differences in financing costs and loan terms,[6] some past policy discussions have been premised on the presumption that private credit replaces bank lending. For example, the IMF has raised financial stability concerns about "the migration of credit provision from regulated banks

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[1] *See, e.g.*, Tamim Bayoumi and Ola Melander, *Credit Matters: Empirical Evidence on U.S. Macro-Financial Linkages*, IMF Working Paper No. WP/08/169 (2008), https://www.imf.org/en/Publications/WP/Issues/2016/12/31/Credit-Matters-Empirical-Evidence-on-U-S-22018 (finding that overall credit decline of 2.5% leads to a drop in GDP of 1.5%).

[2] *See* Sitara Sundar, *Why Private Credit Remains a Strong Opportunity*, JPMORGAN (Jul. 31, 2025), https://privatebank.jpmorgan.com/nam/en/insights/markets-and-investing/why-private-credit-remains-a-strong-opportunity.

[3] Our estimate of $1.71 trillion is based on $1.29 trillion of assets under management in private credit funds as reported by Preqin and $420 billion in private loans investments from business development companies; *see* Andrew Berlin, *BDC Quarterly Wrap: 1Q25,* LSTA30 (Jun. 2, 2025), https://www.lsta.org/news-resources/bdc-quarterly-wrap-1q25/ (reporting that, as of Q1 2025, business development companies managed $475 billion in total AUM, with approximately 89.2%—or $420 billion—invested in private loans).

[4] IMF, *Global Financial Stability Report: The Last Mile: Financial Vulnerabilities and Risk, Chapter 2* (Apr. 2024) [hereinafter, "**IMF Report**"].

[5] For an overview of the regulatory reforms and their impact, *see* COMMITTEE ON CAPITAL MARKETS REGULATION ("**CCMR**"), *The 2018 & 2020 Capital and Liquidity Reforms and Bank Lending* (Jan. 16, 2024), https://capmktsreg.org/wp-content/uploads/2024/01/CCMR-Supplemental-Comments-Regulatory-Capital-Rule-Study-of-Capital-and-Liquidity-Reforms-and-Bank-Lending.pdf (letter submitted to the OCC, Federal Reserve Board of Governors, and the FDIC) [hereinafter, "**CCMR Report**"].

[6] *See e.g.*, IMF Report.

and relatively transparent public markets to more opaque private credit firms . . . ."[7] Based on this assumption, the IMF has called for "more intrusive" regulation of private credit lenders.[8] The IMF has further recommended stringent requirements with respect to liquidity management and stress testing of private credit funds,[9] while also recommending that insurance and pension supervisors implement "banking supervisory practices" with respect to credit risk.[10] Certain legal academics have also expressed concerns about "[t]he transition from bank-intermediated finance to private credit…" with calls for increased regulation as a result.[11]

Since credit provision is an important driver of economic growth, introducing stringent regulations that may dampen private credit lending could have significant negative macroeconomic effects.[12] Therefore, it is critical to establish a clear understanding of the relationship between private credit and bank lending. Private credit may pose financial stability concerns because it supplants bank lending (the replacement hypothesis). Alternatively, the growth of private credit could raise financial stability issues independent of its relationship with bank lending or bring improvements to financial stability.[13] This study focuses on the replacement hypothesis and its potential impacts. If the empirical evidence establishes that private credit does not replace bank lending, then regulatory proposals premised on the replacement hypothesis lack a sound foundation.

To help answer the question of whether private credit replaces bank lending, the Committee on Capital Markets Regulation (the "**Committee**") has conducted an empirical study examining the relationship between the growth of private credit and bank borrowing in the United States over a 16-year period (2008-2023).[14] Since the private credit landscape has evolved over this period, we also conduct our study over smaller subperiods to examine how the relationship between private credit and bank lending may have changed as private credit has grown. The study includes firm-level and aggregate analyses using a detailed loan dataset compiled by the Committee.

Overall, we find no evidence that private credit borrowing replaces traditional bank loans. On the contrary, our firm-level analyses establish that there is a positive relationship between private credit and bank borrowing. Moreover, our analyses of the aggregated data provide no indication that private credit replaces bank lending. Our findings are consistent with the notion that private

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[7] IMF Report at 56.
[8] *See* IMF Report.
[9] *Id*. at 73.
[10] *Id*. at 72.
[11] *See* Jared A. Ellias and Elisabeth de Fontenay, *The Credit Markets Go Dark*, 134 YALE LAW JOURNAL 696 (2025).
[12] *See* Simon Firestone, Amy Lorenc, and Ben Ranish, *An Empirical Economic Assessment of the Costs and Benefits of Bank Capital in the US*, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM Finance and Economics Discussion Series 2017-034 (2017), https://www.federalreserve.gov/econres/feds/files/2017034pap.pdf.
[13] Fernando Avalos, Sebastian Doerr, and Gabor Pinter, *The Global Drivers of Private Credit*, BIS QUARTERLY REVIEW (2025) (noting that "[p]rivate credit could complement the existing bank-based system and bring financial stability benefits").
[14] The 2008-2023 sample refers to fiscal years which vary by firm and includes data as recent as mid-2024.

credit represents a new source of funding for businesses, representing an additional source of capital to traditional bank loans rather than a replacement for them.[15]

The paper proceeds with a brief overview of the private credit landscape, followed by a summary of the current academic literature on the link between private credit and bank lending. We then describe the structure of our empirical study, including firm-level analyses that examine the borrowing choices of individual firms, as well as an aggregate analysis that investigates the link between private credit and bank loans.

[15] *See, e.g.,* Avalos, Doerr, and Pinter, *supra* note 13 (noting that "[p]rivate credit could complement the existing bank-based system and bring financial stability benefits").

II. Private Credit Landscape

Private credit lenders are primarily pooled investment vehicles of institutional investors that are sponsored and managed by asset managers. Closed-end funds account for 81% of lending, followed by business development companies (14%) and collateralized loan obligations (5%).[16] Closed-end funds are investment vehicles that, unlike open-end funds, do not offer share redemptions to investors and, thus, have more flexibility to invest in relatively illiquid assets such as private debt. Business development companies ("**BDCs**") are specialized investment vehicles that combine attributes of closed-end funds and publicly traded companies, offering loans to small- and medium-sized companies. Collateralized loan obligations ("**CLOs**") are structured financial vehicles that pool debt investments and issue tranches of securities backed by the pool of underlying assets. Private credit CLOs focus on investments in middle-market private credit.[17]

Based on the IMF's definition of private credit, private credit closed-end funds and private credit CLOs together represent approximately 86% of the private credit market.[18] They are typically non-public investment vehicles with investors that include pension funds, insurance companies, sovereign wealth funds, and family offices.[19] Conversely, BDCs are publicly traded investment vehicles, offering exposure to public market investors, including retail investors. While some observers have noted that the private credit sector has expanded more recently to include investment-grade bonds[20] and asset-backed financing,[21] the figures reported by the IMF do not include those additional funding channels.[22]

Historically, private credit borrowers have typically been middle-market companies that are too small to access public debt markets but too large for bank loans. As defined by the IMF, middle-market firms in the United States have annual revenues between $100 million and $1 billion. The median private credit borrower in the United States has $500 million of assets, compared to average assets of $4.6 billion for leveraged loan borrowers, $4.5 billion for high-yield bond borrowers, and $16 billion for investment-grade bond borrowers, as of April 2024.[23] However, private credit has increasingly provided financing to larger borrowers in recent years, as the number of jumbo loans of $1 billion or more grew from only six in 2020 to over 60 in 2024.[24]

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[16] IMF Report at 56.
[17] *Id*.
[18] *Id*.
[19] *Id*.
[20] Investment-grade bonds are highly rated corporate bonds, typically with ratings of BBB- or higher by S&P and Fitch or Baa3 and higher by Moody's.
[21] Asset-backed financing generally entails a type of lending secured by the borrower's assets.
[22] For a discussion of this broader view of the private credit landscape, *see e.g.,* Amanda Lynam and Dominique Bly, *Private Credit*, BLACKROCK (Mar. 2025) https://www.blackrock.com/institutions/en-us/literature/market-commentary/private-credit-staying-power-2025.pdf.
[23] IMF Report at Figure 2.3.
[24] Ahmet Degerli and Philip Monin, *Private Credit Growth and Monetary Policy Transmission*, FEDS NOTES, (Aug. 2, 2024), https://www.federalreserve.gov/econres/notes/feds-notes/private-credit-growth-and-monetary-policy-transmission-20240802.html; Lynam and Bly, *supra* note 22.

III. Literature Review

A substantial body of empirical research has emerged in recent years examining the private credit industry, with several papers producing key findings consistent with the hypothesis that private credit represents a new source of capital rather than a replacement for bank lending. However, none of the existing research tests that hypothesis directly, as we do in our study.

A study by Federal Reserve staff economists, Haque, Mayer, and Stefanescu (2024), examines specific loans by bank lenders and private debt lenders, finding that approximately half of private debt borrowers also borrow from banks.[25] The dual borrowers (i.e., those obtaining both bank and nonbank loans) are typically larger and riskier than those borrowing only from banks, and nonbank loans are more expensive than bank loans. While these findings support the conclusion that private debt loans do not replace bank loans, it is also important to note that the analysis does not directly address whether private debt borrowers that do not also have bank loans could have obtained bank financing in the absence of private credit, limiting the authors' ability to draw definitive conclusions regarding the replacement question. Dual borrowing may also simply serve as a form of liquidity management.

Prior research has also documented a belief among private debt investors that private credit is accessed by businesses that would not otherwise be eligible for bank loans. In a survey of private debt fund managers, Block, Jang, Kaplan, and Schulze (2023) report that fund advisors believe that approximately half of their private debt borrowers would not have been able to obtain bank financing.[26] The study also reports that most private fund managers believe borrower size is the main impediment to receiving a bank loan.[27] Each of these findings is consistent with the hypothesis that private credit is not replacing bank lending but rather opening new credit opportunities for U.S. businesses. Of note, the question of whether bank regulation is a factor in a firm's inability to obtain a bank loan remains unanswered in this survey.

Taken together, the findings from these two studies provide a consistent and complementary narrative about private credit. While Haque, Mayer, and Stefanescu (2024) find that half of private debt borrowers do not also obtain a bank loan, Block, Jang, Kaplan, and Schulze (2023) offer a plausible explanation for this pattern, reporting that many private credit borrowers would have been ineligible for bank financing, most commonly due to their size. However, it is important to note that the Block, Jang, Kaplan, and Schulze (2023) survey was conducted in 2021, so the current private credit landscape may no longer produce similar responses, particularly given the rise of jumbo private credit loans that finance larger firms.

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[25] Sharjil Haque, Simon Mayer, and Irina Stefanescu, *Private Debt Versus Bank Debt in Corporate Borrowing*, EUROFIDAI-ESSEC Paris December Finance Meeting (2024), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4821158.

[26] Joern Block, Young Soo Jang, Steven N. Kaplan, and Anna Schulze, *A Survey of Private Debt Funds*, NBER Working Paper 20868 (2023), https://www.nber.org/papers/w30868. The survey references "bank financing" generally, without distinguishing the specific type of financing (e.g., a commercial and industrial loan issued by one bank versus a syndicated loan from a group of banks).

[27] *Id*. at Table 8.

Chernenko, Erel, and Prilmeier (2022) document that private credit borrowers are generally weaker than bank borrowers, being less profitable and riskier (i.e., higher leverage and higher stock price volatility).[28] The stark difference in the financial profiles of nonbank borrowers versus bank borrowers strongly suggests a lack of substitutability between the two sources of capital. The study also finds that private credit is more expensive than bank financing, with average interest rates of nonbank loans exceeding bank loans by 190 basis points.[29] A recent Federal Reserve note similarly finds that private credit funds typically make riskier loans compared with bank commercial and industrial (C&I) loans.[30] The higher cost of private credit comes with certain benefits, however, such as lending terms that allow increased flexibility for the borrower in case of distress and shorter execution times than those typically observed for bank loans and public debt securities.[31]

Overall, the Chernenko, Erel, and Prilmeier (2022) results are entirely consistent with private credit being a new source of financing and not a replacement for bank financing. However, the question of whether the observed differences in borrower characteristics arise from lender criteria or from borrower self-selection into specific lending channels remains open, making it difficult to determine conclusively whether borrowers are replacing bank loans with private credit loans or obtaining financing otherwise unavailable to them.

Finally, in a study of the role of BDCs in the private credit market, Davydiuk, Erel, Jiang, and Marchuk (2025) find that private credit provided by BDCs serves a segment of the market underserved by traditional banking institutions, often making equity investments in their borrower firms alongside the provision of private debt financing.[32] The equity upside allows BDCs to provide credit to unprofitable firms (i.e., negative EBITDA) that would otherwise be unable to obtain bank financing. In addition, the study notes that BDCs often invest in high-growth firms, supporting their development to the point where they become eligible for traditional bank financing.

On the other side of this debate, some academic research argues that private credit does represent a form of regulatory arbitrage, supplanting traditional bank financing rather than complementing it. Erel and Inozemtsev (2024) examine the rise of private credit specifically in the context of tighter banking regulation.[33] The study argues that "the shift in lending from traditional banks to nonbanks is mainly due to regulatory arbitrage and increased bank regulation post-Great

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[28] Sergey Chernenko, Isil Erel, and Robert Prilmeier, *Why Do Firms Borrow Directly From Nonbanks?* 35(11) THE REVIEW OF FINANCIAL STUDIES 4902 (2022).
[29] *Id*.
[30] Jorand Pandolfo, *Banks and Private Credit: Competitors or Partners,* FEDERAL RESERVE BANK OF KANSAS CITY (Aug. 6, 2025), https://www.kansascityfed.org/documents/11124/EconomicBulletin25Pandolfo0806.pdf.
[31] *See* IMF Report.
[32] Tetiana Davydiuk, Isil Erel, Wei Jiang, and Tatyana Marchuk, *Common Investors Across the Capital Structure: Private Debt Funds as Dual Holders*, ECGI Finance Working Paper (2025), https://dx.doi.org/10.2139/ssrn.4992219.
[33] Isil Erel and Eduard Inozemtsev, *Evolution of Debt Financing toward Less-Regulated Financial Intermediaries in the United States*, NBER Working Paper 32114 (2024), https://www.nber.org/papers/w32114.

Recession."[34] However, the study does not test this hypothesis empirically, leaving open the question of whether regulatory arbitrage has led to the increase in private credit.

Davydiuk, Marchuk, and Rosen (2024) examine BDCs in the United States from 2001 to 2017 and find that they tend to enter local markets where there is a shortage of traditional credit, typically driven by tightening bank regulations.[35] This finding, however, merely establishes that private credit lending is generally targeted at firms with limited access to bank credit. In this way, private credit does not replace bank lending per se but rather fills a significant gap in access to credit.

Loumioti (2022) studies private credit lending across six countries, including the United States, between 2003 and 2016, finding that private credit activity is positively associated with regulatory constraints on banks, proxied by the volume of non-performing loans and the number of lawsuits filed against banks.[36] Additionally, the study finds that private credit lenders are more active in regions characterized by greater banking sector consolidation, supporting the conclusion that private credit primarily replaces local shortages in the supply of bank credit. Given that the study covers a period before the more recent expansion of the private credit sector, it is unclear whether the results still hold. Importantly, the study also lacks a causal identification strategy for isolating the effects of private credit growth on bank lending, which is a key question in the policy debate. There is no evidence that private credit loans have been associated with reductions in bank lending.

Avalos, Doerr, and Pinter (2025) find that global private credit lending is more pronounced in countries with more stringent banking regulations, but also in countries with less efficient banking sectors.[37] The authors also observe that nonbank lending is positively associated with a less efficient banking sector, suggesting that private credit fills a gap in credit access left unfulfilled by banks, rather than replacing bank financing. However, the study also notes the U.S. dominance in global private credit issuance, rendering the dynamics of the private credit market in foreign jurisdictions less relevant for U.S. policy purposes. Finally, Fillat, Landoni, Levin, and Wang (2025) analyze private credit in the United States, arguing that private credit loans increasingly resemble broadly syndicated bank loans, both in terms of loan conditions and the characteristics of the borrowers they serve.[38] This finding contrasts with the IMF's claim that private credit includes enhanced covenants as compared to syndicated loans.[39] Moreover, the study does not examine the relationship between private credit and bank borrowing, thus lacking insight into this key question.

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[34] *Id*. at 3.
[35] Tetiana Davydiuk, Tatyana Marchuk, and Samuel Rosen, *Direct Lenders in the U.S. Middle Market*, 162 JOURNAL OF FINANCIAL ECONOMICS (2024), https://doi.org/10.1016/j.jfineco.2024.103946.
[36] Maria Loumioti, *Direct Lending: The Determinants, Characteristics and Performance of Direct Loans*, SSRN Paper (May 31, 2022), https://ssrn.com/abstract=3450841.
[37] Avalos, Doerr, and Pinter, *supra* note 13.
[38] Jose L. Fillat, Mattia Landoni, John D. Levin, and J. Christina Wang, *Could the Growth of Private Credit Pose a Risk to Financial System Stability*, FEDERAL RESERVE BANK OF BOSTON (May 21, 2025), https://www.bostonfed.org/publications/current-policy-perspectives/2025/could-the-growth-of-private-credit-pose-a-risk-to-financial-system-stability.aspx.
[39] IMF Report at 54.

Therefore, while compelling empirical research exists that counters the claim of private credit as regulatory arbitrage, research has not resolved this debate conclusively. Our study builds on this body of research by providing a comprehensive, data-driven empirical examination of the direct link between private credit lending and bank lending using a comprehensive, hand-collected dataset of individual loans. We thus contribute to the policy debate by providing new evidence regarding the relationship between private credit and bank lending.

IV. Data Sample

The significant challenge in an empirical analysis of the relationship between private credit and bank lending is the construction of an adequate sample of private credit and bank loans data. Prior academic studies on this issue have noted that the standard databases typically used by academics for these analyses, namely DealScan or Leveraged Commentary and Data, do not contain comprehensive data on private commercial loans.[40] Therefore, the construction of an adequate sample of loans is a time-intensive, manual process.

To construct our dataset, we leverage the availability of public company disclosures of individual loan agreements that are required of public companies by SEC Regulation S-K.[41] Therefore, our data collection methodology captures those loans deemed to be material by the borrower. In addition, our dataset consists only of public company borrowers. While public companies may be more likely than private companies to have access to bank financing, this distinction still allows our results to be informative. If private credit were replacing bank lending more generally, this dynamic should be most evident among public firms that have the most extensive access to both forms of financing. Furthermore, by examining public company borrowing, we complement prior empirical research by Federal Reserve staff that has focused more on private credit lending to private firms.[42]

For our data collection, we follow Chernenko, Erel, and Prilmeier (2022),[43] who hand-collected loan agreement data for a random sample of 750 publicly traded middle-market firms over the six-year period from 2010 to 2015.[44] In this study, we employ the same methodology, but for a broader set of firms over a longer period, hand-collecting loan agreement data for all firms in the S&P 1500 index over a 16-year period from 2008 through 2023. For each public firm, we screened all 10-K, 10-Q, and 8-K filings in search of disclosures of loan or credit agreements. For each loan identified, we recorded the filing date as well as loan details, including lender, type of credit, loan amount, maturity date, and interest rate. Our search yielded a comprehensive dataset consisting of 10,403 loans for 2,051 public firms over the 16-year sample period.

We further categorized each loan as either a bank loan or a private credit loan based on the lender's identity. In the case of syndicated loans with multiple lenders, we classify a loan as private credit or a bank loan based on the lead lender's identity, using the same criterion as Chernenko, Erel, and Prilmeier (2022).[45]

To classify private credit loans, we identify lenders as one of the two major types of private credit lenders, namely BDCs or private credit funds. In the United States, private credit funds account

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[40] *See e.g.,* Chernenko, Erel, and Prilmeier, *supra* note 28.
[41] SEC Reg. S-K, Item 601(b)(10).
[42] Haque, Mayer, and Stefanescu, *supra* note 25.
[43] Chernenko, Erel, and Prilmeier, *supra* note 28.
[44] *Id*.
[45] *Id*. Lenders are categorized as banks if they have "bank" in their name or match a list of institutions filing Call Reports.

for 60% of private credit lending and BDCs account for the remainder.[46] Therefore, we consider loans issued by BDCs and private credit funds to be private credit loans in our analysis. Our search yielded 623 private credit loans over the full sample period.

We also collected annual information for each firm borrower in our 16-year sample, including return on assets (ROA), profitability (i.e., EBITDA > 0), book-to-market ratio, three-year sales growth, and leverage. **Table 1** reports summary statistics on these borrower characteristics (EBITDA>0 indicates the percentage of firms with positive EBITDA).

Table 1: Summary statistics for borrowers

	Private Credit borrower average (mean)	Bank borrower average (mean)	**Difference**
ROA	0.11	0.12	**-0.015*** **
EBITDA > 0	0.94	0.97	**-0.028*** **
Book-to-Market	0.46	0.53	**-0.072***
Sales growth	0.15	0.09	**0.058*** **
Leverage	0.41	0.34	**0.073*** **

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

The final column of **Table 1** shows the difference in averages between private credit borrowers and bank borrowers with respect to the relevant firm characteristics, with several facts emerging about the two types of borrowers in our sample. Compared with bank borrowers, private credit borrowers have, on average, lower operating performance (lower ROA), lower profitability (smaller percentage of positive EBITDA), higher growth rates, and higher leverage.

Thus, the characteristics of the firms in our sample align with other research on private credit, which also finds that borrowers in the private credit market are typically less profitable than firms borrowing either from banks via the syndicated loan market or through high-yield debt markets.[47] In addition, research on private credit markets provides evidence that firms with poor earnings and high leverage are more likely to borrow from private credit sources rather than banks.[48] Each of these stylized facts is consistent with and confirmed by our findings.

Given the increase in the number of jumbo private credit loans in recent years, borrower characteristics may have evolved during the full sample period. Thus, we also provide borrower summary statistics over three subperiods of our sample: (i) 2008-2012, (ii) 2013-2017, and (iii) 2018-2023. **Table 2** reports the summary statistics for each of these subperiods. As illustrated in the table, in the most recent subperiod (2018-2023), differences between private credit borrowers and bank borrowers converge with respect to profitability, book-to-market ratio, and sales growth. However, private credit borrowers continue to have higher leverage than bank borrowers.

[46] *Id*. at 6.
[47] *See id*.; IMF Report.
[48] Chernenko, Erel, and Prilmeier, *supra* note 28.

Table 2: Summary statistics for borrowers over three subperiods

	Private Credit borrower average (mean)	Bank borrower average (mean)	**Difference**
2008-2012			
ROA	0.11	0.13	**-0.023*** **
EBITDA > 0	0.94	0.97	**-0.026***
Book-to-Market	0.48	0.61	**-0.127***
Sales growth	0.13	0.08	**0.044***
Leverage	0.37	0.31	**0.061*** **
2013-2017			
ROA	0.11	0.12	**-0.014***
EBITDA > 0	0.93	0.98	**-0.043*** **
Book-to-Market	0.46	0.46	**-0.001**
Sales growth	0.20	0.12	**0.084*** **
Leverage	0.42	0.35	**0.074*** **
2018-2023			
ROA	0.12	0.12	**-0.003**
EBITDA > 0	0.96	0.97	**-0.009**
Book-to-Market	0.42	0.49	**-0.065**
Sales growth	0.10	0.08	**0.018**
Leverage	0.46	0.38	**0.083*** **

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

V. Firm-Level Analysis

Our study first analyzes the relationship between private credit and bank loans at the individual firm level. We examine whether a firm's decision to borrow through private credit affects the likelihood that it also borrows from a bank. Finding a negative relationship between firm-level private credit and bank borrowing would provide evidence that private credit replaces bank lending. Conversely, a positive relationship would be consistent with private credit representing a new source of financing, providing additional credit beyond bank loans.

Our firm-level regression models generally take the form:

$$BankLoan = \beta_1 * PrivateCreditLoan + \Sigma\beta_i * FirmControl_i + \Sigma FE_j + \alpha + \varepsilon$$

where the dependent variable, *BankLoan*, is a firm-level annual indicator variable, representing bank borrowing by equaling 1 if a firm borrows from a bank in a given year and 0 otherwise. The explanatory variable of interest, *PrivateCreditLoan*, is a firm-level annual indicator variable, representing private credit borrowing by equaling 1 if a firm borrows from a private credit lender in a given year and 0 otherwise. This empirical design allows us to examine whether borrowing from a private credit lender affects the probability that a firm also borrows from a bank in a given year. While this model only considers the likelihood of certain borrowing types, regardless of the allocation of loan amounts, we consider an additional model specification that focuses on loan amounts in further analysis below.

The model also includes several additional control variables, denoted *FirmControl*, to account for additional factors that drive a firm's demand for bank credit. Following Chernenko, Erel, and Prilmeier (2022), the control variables are return on assets ("**ROA**"), book-to-market ratio, three-year growth rates, leverage, and an indicator variable for positive EBITDA.[49] Finally, the model includes various fixed effects, *FE*. Each model includes annual time fixed effects to account for aggregate shocks (e.g., Federal Reserve interest rate changes) that affect all firms across industries. The inclusion of time fixed effects ensures that the estimated effect of private credit on bank borrowing is not confounded by unobserved factors related to credit demand that are common across firms but vary over time.

In addition, we include firm fixed effects to capture any remaining firm-level drivers of bank lending that are specific to each individual firm and do not vary over time.[50] As a robustness check, we also consider an alternative model with industry fixed effects rather than firm fixed effects to control for sector-specific factors while allowing for between-firm comparisons.[51]

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[49] *Id*.
[50] Firm fixed effects are dummy variables for each individual firm.
[51] Industry fixed effects are dummy variables based on a firm's industry.

The model also includes a constant (α) and an error term (ε). In this model, β_1 is the coefficient of interest, representing the relationship between private credit, *PrivateCreditLoan*, and bank loans, *BankLoan*.

1. Main results

Our main model analyzes the full dataset of loans, consisting of 87,201 firm-year observations. Under the main model with firm fixed effects, we estimate a positive relationship between the likelihood of private credit borrowing and likelihood of bank borrowing, with statistical significance at a 90% confidence level. Our alternative specification with industry fixed effects shows a stronger positive relationship with higher statistical significance at 99%. **Table 3** summarizes the results under both the main model in column (1) and the alternative model in column (2). Under the main model, firms that borrow from private credit lenders are 4.8% more likely to borrow from a bank as well, while the likelihood in the alternative model increases to 15.1%. Each result is consistent with private credit representing an additional source of financing to bank lending.[52]

Table 3: Likelihood of borrowing from a bank (full sample)

	Main (1)	Alternative (2)
Private Credit	0.0484*	0.1510***
Constant	0.0485***	0.0102***
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	87,201	88,384
R^2	0.260	0.064

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

Given the evolving private credit landscape, we also consider whether the relationship between private credit and bank lending has changed over our full sample period. To assess this, we conduct our regression analyses over the three distinct subperiods noted above: (i) 2008-2012, (ii) 2013-2017, and (iii) 2018-2023. **Table 4** summarizes the results for the most recent period (2018-2023) and highlights that not only does the positive relationship between the likelihood of private credit borrowing and the likelihood of bank borrowing persist, but the strength of the relationship has increased more recently. Under the main model, firms that borrow from private credit lenders are 8.9% more likely to borrow from a bank as well, while the likelihood in the alternative model increases to 16.0%. These probabilities represent an increase over the 4.8% and 15.1% found for each model, respectively, over the full sample period.

[52] Avalos, Doerr, and Pinter, *supra* note 13.

Table 4: Likelihood of borrowing from a bank (2018-2023)

	Main	Alternative
	(1)	(2)
Private Credit	0.0882**	0.1598***
Constant	0.0362***	0.0032
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	31,868	32,709
R^2	0.334	0.069

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

2. The relationship between bank syndicated loans and private credit

The empirical model above examines the full dataset of bank loans. However, it is possible that private credit lending replaces a subset of bank loans. Specifically, the IMF has noted that private credit lenders may compete with banks in the syndicated lending market.[53] Therefore, we repeat the main analysis using only syndicated bank loans from the sample. The dependent variable representing bank borrowing now equals 1 if the firm borrows from a bank through a syndicated loan and 0 otherwise. The main explanatory variable representing private credit remains the same. We again consider firm and industry fixed effects in alternative models.

Using these models, our results are qualitatively unchanged. We find a positive relationship between the likelihood of private credit borrowing and the likelihood of syndicated bank loan borrowing, with strong statistical significance at the 99% confidence level under both model specifications. **Table 5** presents our results, illustrating that a firm borrowing through a private credit loan is 6.8% more likely to borrow in the syndicated bank loan market as well. The likelihood increases to 15.7% under the alternative model.

[53] IMF Report.

Table 5: Likelihood of borrowing through a syndicated bank loan

	Main	Alternative
	(1)	(2)
Private Credit	0.0677***	0.1574***
Constant	0.0334***	0.0030**
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	87,201	88,384
R^2	0.245	0.057

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

The finding that private credit borrowing is positively associated with borrowing in the syndicated bank loan market is consistent with private credit representing an additional source of capital to syndicated bank loans. Our empirical analysis does not indicate that private credit competes with syndicated loans.

We again considered the potential for a shift in the dynamic between private credit and bank lending more recently by running our regressions over three distinct subperiods. **Table 6** summarizes the results for the most recent subperiod (2018-2023), showing similar results to those for the full sample period. Under our main model, firms borrowing through private credit are 9.5% more likely to borrow through the syndicated bank loan market as well, with 95% statistical significance. The likelihood increases to 14.7% with 99% statistical significance under the alternative model.

Table 6: Likelihood of borrowing through a syndicated bank loan (2018-2023)

	Main	Alternative
	(1)	(2)
Private Credit	0.0946**	0.1472***
Constant	0.0330***	0.0009
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	31,868	32,709
R^2	0.316	0.062

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

3. The relationship between bank lending to middle-market firms and private credit

In addition to syndicated bank loans, we consider another subset of our loans dataset by examining only borrowing by middle-market firms.[54] Following Chernenko, Erel, and Prilmeier (2022),[55] we define middle-market firms as those with annual sales between $10 million and $1 billion. Using this model, we find no statistically significant relationship between private credit borrowing and bank borrowing by middle-market firms under our model using firm fixed effects. However, our model with industry fixed effects shows a positive relationship with 99% statistical significance. **Table 7** presents the regression results and shows under the alternative model that middle-market firms that borrow from private credit lenders are 15.2% more likely to borrow from banks as well.

Table 7: Likelihood of borrowing from a bank – mid market firms

	Main	Alternative
	(1)	(2)
Private Credit	0.0756	0.1523***
Constant	0.0207***	0.0091***
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	43,618	44,683
R^2	0.257	0.037

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

Our analysis of the distinct subperiods yields even stronger results for the most recent subperiod (2018-2023). **Table 8** summarizes the results for the most recent period (2018-2023), showing that under the main model, middle-market firms that borrow from private credit lenders are 19.6% more likely to borrow from a bank as well, with 90% statistical significance, representing a

[54] *Id*.
[55] Chernenko, Erel, and Prilmeier, *supra* note 28.

stronger result than the statistically insignificant relationship found over the full sample period. In addition, the likelihood under the alternative model increases to 20.0% with 95% statistical significance, an increase over the 15.2% likelihood found over the full sample period.

Table 8: Likelihood of borrowing from a bank – mid market firms (2018-2023)

	Main	Alternative
	(1)	(2)
Private Credit	0.1963*	0.1998**
Constant	0.0058*	0.0031
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	14,613	15,331
R^2	0.331	0.038

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

4. Lending amounts

The evidence above mirrors Chernenko, Erel, and Prilmeier (2022) in examining the relationships between the likelihoods of firm-level private credit borrowing and bank borrowing. But we also extend our analysis to consider the relationship between loan amounts. That is, we examine how the size of a firm's private credit borrowing impacts the size of its bank borrowing. In this empirical test, we regress firm-level bank loan amounts on firm-level private credit borrowing. The regressions include firm-level control variables as well as firm and time fixed effects. In addition, we again include an alternative model specification that replaces firm fixed effects with industry fixed effects.

Consistent with the above results, we find a positive relationship between the size of a firm's private credit borrowing and the size of its bank borrowing under both model specifications. The main model establishes a positive relationship that is significant at the 95% confidence level, while the alternative model also shows a positive relationship with stronger statistical significance at 99%. **Table 9** shows that for the main model, every dollar a firm borrows from a private credit lender is associated with an additional $0.10 in bank borrowing. Our alternative model finds that bank borrowing increases by $0.20 for every dollar of private credit borrowing.

Table 9: Amount of borrowing from a bank (full sample)

	Main	Alternative
	(1)	(2)
Private Credit	0.1013*	0.1969***
Constant	71.7545***	-6.0554
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	87,201	88,384
R^2	0.233	0.029

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

The results of our analysis of loan amounts are consistent with our analyses of borrowing probabilities above. While our regressions focus on the relationship between loan amounts, an interesting question for future research would be how a borrower's mix between private credit and bank funding as a percentage of total firm debt has evolved over the past decade.

Analysis of the three distinct subperiods yields similarly positive results for the most recent subperiod (2018-2023). **Table 10** presents the results for 2018-2023 and shows that under the main model, every dollar a firm borrows from a private credit lender is associated with an additional $0.09 in bank borrowing. Our alternative model finds that bank borrowing increases by $0.15 for every dollar of private credit borrowing.

Table 10: Amount of borrowing from a bank (2018-2023)

	Main	Alternative
	(1)	(2)
Private Credit	0.0881**	0.1477***
Constant	73.9532***	-12.4006
Firm controls	Yes	Yes
Year fixed effects	Yes	Yes
Firm fixed effects	Yes	No
Industry fixed effects	No	Yes
N	31,868	32,709
R^2	0.396	0.074

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

5. Additional robustness checks

While the multiple variations of our firm-level tests establish a consistently positive relationship between private credit and bank borrowing, we conduct additional robustness checks to further confirm these findings. Since firm-level regressions are potentially more susceptible to idiosyncratic noise or firm-specific shocks, we smooth out our firm-level observations by grouping firms into deciles based on comparable firm characteristics. Our firm groupings consist of size (market capitalization), profitability (ROA), and risk (leverage) deciles.

By examining the relationship between private credit and bank borrowing within deciles, we can test whether the aggregate borrowing behavior of similarly sized (or profitable or risky) firms exhibits the same relationship observed at the firm level. Moreover, by considering multiple characteristics for firm groupings, we can establish whether the relationship is consistent regardless of how firms are grouped (i.e., based on size, profitability, or risk).

Table 11 presents the results of the robustness checks for each of the firm-decile groupings. Whether similar firms are grouped by market capitalization, ROA, or leverage, we find a positive relationship between private credit borrowing and bank borrowing, with 99% statistical significance for each firm characteristic. Within each decile, firms that borrow from private credit lenders are more likely to borrow from banks, which is consistent with private credit representing an additional source of funding, not a replacement for bank financing.

Table 11: Borrowing relationship among firm subgroups (deciles)

	Firm decile groupings		
	Market Cap	ROA	Leverage
Private Credit	11.0155***	6.2837***	5.3492***
Constant	0.0091	0.0245**	0.0323***
N	160	160	149

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

These results, which are fully consistent with the firm-level regressions above, firmly establish that the positive relationship between private credit and bank borrowing persists among similarly grouped firms. Thus, the results of our firm-level regressions generalize across the private credit sector and are unlikely driven by outliers or firm-specific dynamics in our sample, providing further credibility to our conclusions.

Overall, none of the results from our multiple firm-level analyses indicate that private credit replaces bank loans. Firms that borrow from private credit lenders are *more likely* to borrow from banks, with higher levels of private credit borrowing associated with higher levels of bank borrowing by individual firms. Moreover, the positive relationship is qualitatively unchanged for subsets of bank loans (syndicated bank loans), as well as subsets of borrowers (middle-market firms). We also found that this relationship persists over a more recent period (2018-2023) with even stronger results in some instances. Robustness checks based on similarly grouped firms further confirm the validity of these results.

VI. Aggregate Analysis

We also consider the relationship between aggregate private credit lending and bank lending to examine whether private credit replaces bank lending at the aggregate level. To conduct this analysis, we aggregate all loans by type annually. As with the firm-level analyses, we follow Chernenko, Erel, and Prilmeier (2022)[56] in classifying the loan type based on the identity of the lead lender. Our empirical model is a linear regression of annual amounts of bank lending on annual amounts of private credit. We also include macro control variables - GDP growth and one-year Treasury yield - to capture economy-wide drivers of credit demand.

Examining total private credit and bank lending, we find no statistically significant relationship between aggregate private credit and bank loans. Limiting the analysis to syndicated bank lending, we find no statistically significant relationship between aggregate private credit and syndicated bank loans**.** Finally, examining the relationship for middle-market firms – defined as those with annual sales between $10 million and $1 billion – we again find no statistically significant relationship between aggregate private credit and bank loans among middle-market borrowers. **Table 12** presents the results. While we find a positive correlation between the two sources of capital under each model, the coefficients are not statistically significant at conventional levels.

Table 12: Aggregate bank borrowing

	Full Sample	Syndicated	Mid Market
	(1)	(2)	(3)
Private Credit (aggregate)	1.4235	1.5402	0.0979
Macro controls:			
One-year treasury rate	-0.0620*	-0.0585*	-0.0129**
GDP growth rate	1.2874	1.6078	-0.0573
N	16	16	16
R^2	0.284	0.339	0.369

*, **, and *** indicate statistical significance at 90%, 95%, and 99%

Overall, the aggregate analysis corroborates the evidence from the firm-level analysis. None of these results indicates that private credit replaces bank lending. In fact, the results are consistent with private credit serving as an additional source of capital for U.S. firms.

[56] *Id*.

VII. Conclusion

We find no evidence that private credit borrowing replaces traditional bank loans. At the firm level, private credit borrowing is associated with an increased likelihood of bank borrowing. Whether we examine our full loans dataset or consider only syndicated bank loans or loans obtained by middle-market firms, we find a positive relationship between private credit and bank borrowing at the firm level. This positive relationship persists over a more recent sample period as well. In addition, on an aggregate basis, growth in private credit has been associated with growth in bank lending, although not at a statistically significant level. Each of our several results is consistent with private credit representing an additional source of credit that is independent of banks.

Our study demonstrates, through several models, a positive association between private credit borrowing and bank borrowing, both with respect to the likelihood of borrowing and the loan amounts, thus mitigating concerns that private credit replaces bank lending. While our paper does not focus on other possible systemic risk concerns associated with private credit beyond replacement, we note that the growth of private credit alone is an insufficient basis for raising systemic risk concerns, as the underlying structural features of private credit funding mitigate the vulnerabilities typically associated with financial stability concerns.

Private credit funds are not subject to runnable liabilities, such as demand deposits or short-term wholesale funding. Instead, they are typically financed through long-term, locked-up capital commitments from institutional investors, including pension funds and insurance companies. While some private credit is offered through semi-liquid BDCs, the redemption rights in those vehicles are limited (e.g., 5% of outstanding shares per quarter).

Although we support extensive reforms to the existing regulation of the banking system as set forth in our recent *Financial Regulatory Priorities Report,*[57] our findings suggest that the rise of private credit should not form the basis for reducing bank regulations due to competitive concerns. Private credit is an additional source of capital for borrowers, not a form of regulatory arbitrage.

A measured approach to regulation—one that reflects the actual economic function of private credit—would help preserve the benefits of expanded credit availability without undermining financial stability. As the credit landscape continues to evolve, evidence-based policy is essential for facilitating innovation, financial stability, and economic growth.

[57] CCMR, *Priorities for Financial Regulatory Policy* (Feb. 4, 2025), https://capmktsreg.org/wp-content/uploads/2025/02/CCMR-Priorities-for-Financial-Regulatory-Policy-02-04-25.pdf.

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