

# The Role of Liquidity and Funding Frictions in Credit Risk Pricing: Insights from the CDS–Bond Relationship of JPMorgan Chase

Yuting Yang\*

Faculty of Natural Sciences, Imperial College London, London, United Kingdom

\*Corresponding author: ay2123@ic.ac.uk

**Abstract.** This paper examines the use of Credit Default Swaps (CDS) for hedging credit risk, with a specific focus on the practices of a major dealer bank, JPMorgan Chase & Co. While CDS spreads are recognized as a relatively pure measure of default risk and often lead bond markets in price discovery, corporate bond spreads additionally embed significant liquidity, funding, and tax components. This divergence means a CDS-only hedge is insufficient to neutralize P&L volatility in cash bond inventories. We propose an integrated hedging framework: using CDS as a primary overlay for default risk and an early-warning indicator, then combining them with cash-bond or asset-swap legs to manage the resultant basis and liquidity risks. This approach must be dynamic, especially under market stress when funding shocks and margin calls can widen basis spreads. The strategy is underpinned by a strong balance sheet, which allows for maintaining hedges during dislocations. The study concludes that effective credit risk management requires a dual approach that addresses both default and non-default components of credit spreads, with implications for bank-level risk management, market efficiency, and financial stability policy.

**Keywords:** Credit Default Swaps (CDS); Credit Risk Hedging; CDS-Bond Basis; Liquidity Risk.

## 1. Introduction

Credit Default Swaps (CDS) have become one of the most widely used instruments for managing and pricing credit risk. A CDS allows investors to transfer the default risk of a reference entity, providing insurance-like protection. Because of this structure, CDS spreads are often viewed as a relatively pure measure of credit risk [1]. In contrast, corporate bond yield spreads are also affected by taxation, funding costs, and market frictions. This distinction has motivated researchers to compare CDS spreads with bond spreads in order to better understand the drivers of credit risk premia.

Early research shows that CDS and bond markets are closely linked. Blanco et al. find that the CDS market often leads in price discovery [2]. Their results indicate that CDS spreads adjust more quickly than bond spreads, which then move to align with CDS prices. This suggests that the CDS market contains valuable information about credit risk that the bond market subsequently incorporates. The study highlights the role of CDS as a benchmark for credit risk pricing and for evaluating market efficiency.

Longstaff et al. take a different approach by decomposing corporate bond yield spreads into default risk and a residual non-default component, while using CDS spreads as a direct measure of default risk [1]. They show that default risk accounts for most of the spread, but that a significant portion remains, strongly linked to liquidity in individual bonds and in the overall market. This provides clear evidence that liquidity premia are an essential part of credit spreads, and that ignoring liquidity can lead to biased assessments of credit risk.

Taken together, these studies suggest that CDS spreads not only measure default probability but also provide insights into broader market dynamics. The leading role of CDS in price discovery and its relative clarity as a measure of default risk make it a valuable tool for empirical research. At the same time, comparison with bond spreads highlights the importance of liquidity risk, which carries direct implications for risk management, asset pricing, and regulatory policy.

As a more recent perspective, the Bank for International Settlements (BIS) has emphasized how systemic liquidity risks—such as the 2022 gilt market disruption in the UK—can amplify the effects

of monetary policy tightening on financial stability [3]. This example shows that studying credit spreads requires attention not only to default risk but also to liquidity and market frictions.

Building on the existing literature, our study examines the relationship between theoretical CDS spreads, derived from hazard-rate models, and observed market spreads. CDS spreads are widely viewed as a relatively clean proxy for default risk, whereas corporate bond spreads also embed liquidity premia and other market imperfections. This contrast motivates a central question: when model-implied CDS spreads diverge from market quotations, how much of the gap reflects liquidity and how much stems from other frictions such as funding costs, investor risk appetite, or regulatory constraints?

To address this question, we adopt a reduced-form hazard-rate model to produce theoretical CDS spreads across different default intensities and compare them with observed market quotes. By systematically analyzing the resulting discrepancies, we identify the contribution of liquidity risk and assess whether the model adequately captures the pricing dynamics of CDS contracts. Section 3 provides a concise numerical implementation of the framework and a side-by-side comparison between model-implied and market CDS spreads. This integrated approach links reduced-form credit-risk modelling to empirical evidence and offers practical implications for risk management, asset pricing, and policy discussions on market transparency and efficiency.

## 2. Company Description

JPMorgan Chase & Co. is the largest bank in the United States and one of the leading global financial institutions. According to its 2024 Annual Report, the company operates through four primary business segments: Consumer & Community Banking, Corporate & Investment Banking, Commercial Banking, and Asset & Wealth Management [4]. This diversified structure generates revenues from a wide range of activities, including traditional lending and deposits, investment banking fees, trading and market-making, and long-term asset management. By balancing relatively stable sources of income (such as retail banking) with businesses more sensitive to market volatility (such as trading and advisory), JPMorgan strengthens its resilience across economic cycles.

In capital markets, JPMorgan maintains a leading position in global fixed income, foreign exchange, commodities, and derivatives trading. As one of the major dealers in credit derivatives including credit default swaps (CDS), the bank plays an important role in credit risk transfer and pricing. It should be noted, however, that CDS form only part of its broad derivatives portfolio rather than a standalone “core business.” Revenues from trading and derivatives are highly sensitive to changes in interest rates, investor risk appetite, and market liquidity [4].

In addition to its diversified business model and strong position in derivatives markets, JPMorgan’s role should also be seen in the wider context of financial stability. Past events show that liquidity is often a key factor in market stress. For example, Aramonte and Rungcharoenkitkul describe how high leverage and a lack of liquidity made the UK gilt market crisis worse, showing that large banks and funds can either spread shocks or help stabilize markets through their trading activities [3]. Likewise, the BIS reports that global markets, under pressure from inflation and tighter monetary policy, have become more volatile, highlighting the importance of liquidity management [5]. This means that JPMorgan’s CDS spreads are not only a signal of its own credit risk but also reflect broader conditions in global financial markets.

Overall, JPMorgan’s scale, diversified business model, and central role in derivatives markets allow it to remain profitable while managing risks effectively. At the same time, its CDS spreads are often used as an indicator of both default risk and liquidity stress in the financial system, which directly links the company to the core themes of credit risk research.

### 3. Hedging Strategy

#### 3.1. Credit Default Swaps as a Hedging Tool

JPMorgan's 2024 Annual Report identifies the firm as one of the largest dealers in credit derivatives, including single-name and index CDS [4]. From a risk-management standpoint, CDS premia primarily compensate for default risk, whereas cash-bond spreads embed default plus non-default components such as liquidity, taxes, and funding costs. Longstaff, Mithal, and Neis (2005) quantify the default share of corporate yield spreads—about 51% for AAA/AA, 71% for BBB, and 83% for BB—leaving a material non-default remainder [1]. In reduced-form terms, a hazard-rate model links spreads to default intensity and loss given default, providing the standard valuation lens for defaultable cash flows and the theoretical CDS premium as a “pure” default baseline [6]. Because CDS typically lead bonds in price discovery, they function both as position hedges and early-warning indicators for deteriorating credit conditions [2]. Under collateralized trading arrangements, counterparty risk is priced but economically modest relative to total premia, supporting the operational use of CDS overlays [7].

Transition. However, because cash-bond spreads contain non-default components, a CDS-only overlay cannot fully neutralize P&L volatility in cash inventories; this motivates the combined approach below.

#### 3.2. Bond–CDS Combinations for Managing Basis and Liquidity

CDS alone hedge the default component; they do not remove the non-default portion embedded in bond spreads. Longstaff et al. attribute roughly 20–100 bps of typical corporate spreads to liquidity and related frictions [1]. Large-sample evidence further shows that bond-level liquidity is materially priced—less liquid bonds command higher spreads, and improvements in liquidity compress spreads even after controlling for fundamentals [8]. Given JPMorgan's sizable inventories across trading and lending businesses, hedge design must therefore address both default and liquidity/basis risks [4].

A standard construction is a paired hedge: short (or synthetically short via repo/asset-swap) the target bond while buying matching CDS on the same reference entity and seniority. The cash-bond leg offsets liquidity-driven price moves; the CDS leg offsets default losses; together they reduce the CDS–bond basis [1, 4]. In practice, short-run deviations between CDS and bonds can persist due to market frictions (e.g., funding and short-selling constraints, bid–ask costs), so a static 1:1 overlay may over- or under-hedge unless the hedge ratio is monitored and adjusted as conditions evolve [2]. Where direct shorting is difficult, dealers may proxy liquidity exposure with asset-swaps, index CDS, or duration-matched futures to cover systematic components of inventory risk [4].

Transition. Hence basis control is not a one-off trade but an ongoing process that becomes most critical under stress.

#### 3.3. Dynamic Hedging under Market Stress

Stress episodes amplify precisely those frictions that create basis risk. The BIS (Dec. 2022) documents how inflation and rapid monetary tightening increased volatility and weakened liquidity even in core markets such as government bonds and agency MBS [5]. Aramonte and Rungcharoenkitkul highlight the UK gilt episode, where leverage and margin calls forced asset sales until central-bank intervention, illustrating how shocks propagate through market-making channels [3]. Consistent with Longstaff, Mithal, and Neis (2005), liquidity components can become very large in the short run even if they mean-revert over longer horizons, implying that a static CDS overlay is insufficient under stress [1].

For JPMorgan, the hedge response is twofold: rebalance CDS overlays and, when shocks are rates-driven, add cross-market hedges (e.g., interest-rate swaps, government-bond futures) so that rate–liquidity comovements do not leave unhedged P&L [3]. The firm's “fortress balance sheet” (e.g., CET1 15.7%, average LCR 113% in 2024) provides the capital and liquidity capacity to maintain and roll hedges rather than deleverage into dislocations [3]. While counterparty risk in CDS is priced,

evidence indicates it is secondary to liquidity and margin dynamics in explaining stress-period premia under collateralized practice, reinforcing the primacy of liquidity-aware, dynamically rebalanced programs [7].

## 4. Impact

### 4.1. Bank-Level Impact

JPMorgan uses single-name and index CDS as the first line of defense against jump-to-default on loan and bond inventories, consistent with evidence that default explains the majority of corporate yield spreads across rating buckets [1]. Because CDS typically lead cash bonds in price discovery—and react faster around rating actions—they provide earlier warning signals than cash yields when credit quality deteriorates [2, 9]. For calibration, dealers benchmark parity against the swap/ASW curve rather than Treasuries to avoid Treasury specialness and to keep the measurement yardstick aligned with CDS market practice [9]. On the modelling side, reduced-form (hazard-rate) frameworks link spreads to default intensity and loss given default, allowing desks to compare model-implied CDS premia with quoted levels and to diagnose liquidity- or funding-driven gaps before adjusting hedge size [6]. A CDS-only overlay cannot eliminate the non-default portion of cash-bond spreads—liquidity, funding, and tax components—so residual P&L volatility remains unless those exposures are managed explicitly with cash-leg or asset-swap components [1]. Under collateralized trading and standard credit support annexes, counterparty premia are priced but are economically modest relative to total CDS premia, which supports continued use of CDS overlays even when volatility rises [7]. Balance-sheet strength—CET1 of 15.7% and an average LCR of 113% in 2024—gives JPMorgan capacity to maintain and roll hedges through stress rather than deleverage into dislocations, preserving client facilitation and market-making when it is most valuable [3].

### 4.2. Market-Level Impact

Dealer provision of CDS facilitates risk transfer and strengthens system-wide price discovery because information is impounded in CDS first and then migrates to cash bonds through relative-value trading and inventory adjustments [2]. Cash-bond spreads nevertheless embed sizeable non-default components even when default risk is broadly unchanged, so a CDS-only hedge cannot neutralize inventory P&L tied to trading conditions and financing costs [1]. Large-sample evidence shows that bond-level liquidity is materially priced, with less liquid issues carrying wider spreads after controlling for fundamentals; this means modest changes in depth or bid–ask can move spreads without any shift in default probabilities [8]. Limits to arbitrage—short-selling frictions, repo availability and cost, and execution constraints—allow CDS–bond bases to persist rather than close immediately, which is why replication trades are neither instantaneous nor riskless for dealer inventories [2]. Deliverability and restructuring clauses (including cheapest-to-deliver features) further impede perfect matching between the cash and derivative legs, adding to basis variability around settlement-relevant events [2]. Effective programs therefore pair CDS with cash-bond or asset-swap legs so that default and liquidity exposures are managed jointly rather than sequentially, while index CDS or duration-matched futures can proxy systematic components when direct shorting is difficult [4]. In day-to-day control, desks monitor ASW–CDS bases across maturities and compare hazard-implied with quoted CDS premia to decide whether to re-scale overlays, embedding a measurement discipline in routine hedging decisions [6].

### 4.3. Policy and Regulatory Impact

Tightening cycles and volatility spikes weaken market liquidity and widen funding premia in core fixed-income markets, raising the cost of carrying credit inventories and increasing the sensitivity of P&L to liquidity shocks [5]. In extreme episodes, leverage and margin calls can force asset sales through dealer channels—as illustrated by the UK gilt dislocation—showing how shocks propagate via market-making capacity and funding constraints [3]. A margin-based asset-pricing view explains

these dynamics by linking the CDS–bond basis to the shadow cost of funding multiplied by the haircut/margin differential between cash bonds and CDS; when haircuts rise or unsecured–secured spreads widen, the basis moves away from zero even if default intensities are unchanged [10]. The practical implication is that static 1:1 overlays drift under stress and must be rebalanced more frequently, with cross-market hedges (e.g., interest-rate swaps or government-bond futures) added when rate–liquidity comovements dominate variance in credit spreads [3]. Adequate capital and HQLA buffers are preconditions for private hedging to stabilize rather than amplify shocks because they allow positions to be hedged and warehoused instead of liquidated into thin markets [4]. Resilient repo and securities-lending plumbing is equally important since borrowing channels and collateral terms determine whether basis control can actually be executed at scale during dislocations [5]. Under collateralization norms, counterparty premia are secondary to liquidity and margin channels, but governance should still align risk appetite, limits, and playbooks with funding stress tests and explicit basis-limit frameworks that tighten as conditions worsen [7].

## 5. Conclusion

This paper aims to answer a practical question in the debate on credit spreads, which is how a large dealer bank should manage credit risk when CDS and cash bonds reflect different parts of the spread. Based on earlier research, we treat CDS spreads as the clearest signal of default risk and use a hazard-rate approach to separate default drivers from non-default ones. Evidence shows that CDS prices often move before bonds and that bonds include additional liquidity costs, which means a single instrument is rarely enough to hedge risk. For this reason, we propose a framework that is simple but still workable in practice.

The first step is to use CDS overlays as the main protection against sudden default and as an early warning signal. The second step is to combine CDS with cash bonds or asset swaps in order to control basis and liquidity risks that CDS alone cannot cover, and hedge ratios should be recalibrated to the swap or asset-swap curve rather than to Treasuries so that measurement noise can be avoided. The third step is to make the hedging program both dynamic and cross-market, because when funding becomes tight and market depth decreases, margins and haircuts push the CDS–bond basis away from parity, so CDS overlays need to be supported with rate instruments such as interest rate swaps or government bond futures, and they must also be backed by strong capital and high-quality liquid assets.

The example of JPMorgan shows that this type of program can be realistic, since its scale, asset mix, and balance sheet strength make it possible to maintain and roll hedges instead of cutting positions under stress, although there are also limits created by repo costs, shorting constraints, and contract rules that may prevent bases from closing quickly.

The broader lessons are clear. For banks, a CDS-first framework that takes account of liquidity and margin conditions can reduce large losses and stabilize profits. For markets, CDS improve price discovery and risk transfer but replication is never risk-free. For policy, stable systems for collateral, netting, repo, and securities lending are necessary for private hedging to work in times of stress.

Some limitations remain, since CDS and bonds do not match perfectly and non-default components are difficult to measure. Future work should include time-varying hazard rates, better measures of funding and liquidity, and high-frequency dealer-level data to show how banks adjust hedges in real time.

## References

- [1] Longstaff, F. A., Mithal, S., & Neis, E. (2005). Corporate yield spreads: Default risk or liquidity? New evidence from the credit default swap market. *The Journal of Finance*, 60(5), 2213–2253.
- [2] Blanco, R., Brennan, S., & Marsh, I. W. (2005). An empirical analysis of the dynamic relation between investment-grade bonds and credit default swaps. *The Journal of Finance*, 60(5), 2255–2281.

- [3] Aramonte, S., & Rungcharoenkitkul, P. (2022, December). Leverage and liquidity backstops: Cues from pension funds and gilt market disruptions. *BIS Quarterly Review*.
- [4] JPMorgan Chase & Co. (2024). Annual report 2024. <https://www.jpmorganchase.com/content/dam/jpmc/jpmorgan-chase-and-co/investor-relations/documents/annualreport-2024.pdf>
- [5] Bank for International Settlements. (2022, December). Markets swayed by inflation and growth prospects. *BIS Quarterly Review*.
- [6] Duffie, D., & Singleton, K. J. (1999). Modeling term structures of defaultable bonds. *Review of Financial Studies*, 12(4), 687–720.
- [7] Arora, N., Gandhi, P., & Longstaff, F. A. (2012). Counterparty credit risk and the credit default swap market. *Journal of Financial Economics*, 103(2), 280–293.
- [8] Chen, L., Lesmond, D. A., & Wei, J. (2007). Corporate yield spreads and bond liquidity. *Journal of Finance*, 62(1), 119–149.
- [9] Hull, J., Predescu, M., & White, A. (2004). The relationship between credit default swap spreads, bond yields, and credit rating announcements. *Journal of Banking & Finance*, 28(11), 2789–2811.
- [10] Gârleanu, N., & Pedersen, L. H. (2011). Margin-based asset pricing and deviations from the law of one price. *Review of Financial Studies*, 24(6), 1980–2022.