Discussion of "Intermediary Loan Pricing" by Mabille and Wang

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European Finance Association | August 2023

What this paper is not

- Intermediary asset pricing in the typical sense
  - Expected excess returns are very simple:
    - same for all loans
    - just shadow cost of funds
  - All the "action" is in the mix of contracting terms that deliver that same expected excess return
- Mechanism design: optimal contracting in the presence of asymmetric information
  - Banks know what they need to know about borrowers: μ_i and $\overline{V_i}$
  - They are not implementing a screening mechanism to have borrowers reveal their types through choices off a menu

What is a loan?

- Borrowing terms:
  - When: All at once? In installments? At a time of borrower's choosing (credit lines)?
  - How much? Loan amount or credit limit
- Repayment terms:
  - When: Short-term vs. long-term balloon vs. long-term installments
  - How much: fees, interest rate
  - What happens if the borrower doesn't: secured vs. unsecured
- States of the world which will accelerate repayment
  - E.g., covenants, margin calls

Ignore temporal aspects, non-rate prices

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Collapse non-price terms into one object

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Loan: (Rate, Amount, Non-Price Term)

- Borrowing terms: Amount l_i
- Repayment terms: Repay $R_i l_i$ tomorrow
- Non-price terms z_i :
  - Elements of the contract that increase repayment probability holding rate + amount fixed but which lower borrower utility

An (Almost) Reduced-Form Model

- Profit on loan to borrower i:

$$\pi_i(R_i, l_i, z_i) = \big(R_i - R_f\big)l_i - \mu(R_i l_i, z_i; \theta_i)R_i l_i$$

  - Depends on loan terms (R_i, l_i, z_i) borrower characteristics θ_i which affect expected loss $\mu(R_i l_i, z_i; \theta_i)$, and bank cost of funds R_f
  - Expected losses increase in repayment amount, decrease in non-price terms
- Banks maximize total profit $\int \pi_i di$ subject to capacity constraint $\int \rho(\theta_i) l_i di \leq \bar{L}$
- Households have indirect utility $V(R, l, z; \theta_i)$ increasing in l, decreasing in R, z, with $V_{lR} < 0$

Model Implications

- Household heterogeneity θ_i matters to the extent it affects
  - The degree to which losses $\mu(R_i l_i, z_i; \theta_i)$ are endogenous to repayment terms $R_i l_i$
    - Captured by a "sufficient statistic" α_i
  - The degree to which the (constrained) demand for loans is sensitive to the interest rate at the equilibrium level of non-price terms z_i
    - Captured by a "sufficient statistic" ϵ_i (which turns out to depend on α_i in equilibrium)
  - The risk-weight of the borrower $\rho(\theta_i)$
- Aggregate credit supply depends on cost of funding R_f and lending capacity $\bar{L}$
  - An L-shaped supply curve

Two Categories of Results

- The effects of a shock to bank credit supply depends on the borrower's total elasticity of demand. Take a negative shock:
  - Elastic (high ϵ) markets: borrowers are willing to give up loan amount to keep the same rate (e.g., credit cards)
    - Everyone becomes less risky because they're borrowing less
    - Composition shifts towards *relatively* riskier borrowers since their *relative* penalty declines
  - Inelastic (low ϵ) markets: borrowers are willing to pay higher rates to keep the same loan amount (e.g., mortgages)
    - If they are risky, this may not be feasible since higher rate leads to higher defaults.
    - Composition shifts towards safer borrowers
  - Both consistent with U.S. empirical evidence

Two Categories of Results

- The effects of a shock to bank credit supply depends on the borrower's total elasticity of demand. Take a negative shock:
- The non-price dimension of loan contracting can make banking crises more persistent (but also milder)
  - Standard one-dimensional model: More constrained banks → higher credit spreads → Banks rebuild equity through high retained earnings
  - This model: Bank constraints can lead to tighter covenants or more rationing rather than higher spreads, so the equity rebuild happens more slowly
    - Consistent with Bisetti, Li, and Yu (2023)
  - "Neutrality" result: contacting environment affects impact vs. persistence, not the aggregate effect of constraints in PV terms: *but presumably not in welfare terms for agents who like to smooth!*

Comment 1: What's special about loans vs. bonds?

- (or other securities traded in Walrasian markets)
- Authors' answer: for loans, "asset payoffs are endogenous to asset prices"
- But that's true for all assets in a rich enough model!
  - E.g., Default decision depends on the PV of future payments
  - E.g., investment opportunities depend on the cost of capital
  - In equilibrium, when repayments go up, defaults still go up
- A clarification: for loans, lenders can internalize this endogeneity when pricing individual loans
- Important for comparing persistence of crises in this model vs. canonical models.
  - Same: Banks don’t internalize, so lend more at a higher equilibrium rate
  - Different:
    - If asset payoffs are exogenous, this is all pure profit and quickly recapitalizes banks → no persistence
    - If they are not, more losses → even higher rates ex-ante, and eventually borrowers simply borrow less/invest less at such high rates → persistent crises
  - The source of quick recoveries in some “canonical” models is on the bank liability side, not asset

Comment 2: What's special about loans vs. tomatoes?

- At a high enough level of abstraction, this is a model explaining who pays $1 for a regular tomato and who pays $5 for a pair of organic tomatoes
  - Price, Quantity, Non-Price Terms
- Key difference: the supermarket revenue per tomato doesn't decrease when I buy more of them
  - No rationale for nonlinear pricing
- But why are borrowers willing to do this?
  - It would cheaper (and/or more feasible) to borrow $10K from Bank 1 and $10K from Bank 2 than to borrow $20K from the same bank
  - Banks can prevent this with good underwriting if they can observe $\mu\left(\int_b R_i^b \; l_i^b \, db \, , z_i; \theta_i\right)$
  - Does the model require exclusivity? The data doesn't – multiple credit cards, second-lien mortgages

Comment 3: Interpretation of risk weights

- Recall that ρ in the capacity constraint $\int \rho(\theta_i) l_i di \leq \bar{L}$ depends only on borrower type, not loan terms
  - Consistent with the interpretation of $\rho(\theta_i)$ as a regulatory risk weight
  - Delivers a separability result: $r_i = r_f + \mu_i + \rho_i \, v$
  - Excess return $\rho_i \, v$ is independent of contract features
- But the main experiment – relaxing $\bar{L}$ to study credit supply transmission – invites a broader interpretation: a reduced-form stand-in for all intermediary balance-sheet frictions
  - In that interpretation, ρ would be a function of μ: riskier assets require more "balance sheet capacity"
  - Constrained intermediaries care about losses beyond their effect on expected payoffs → look risk-averse even if they are risk neutral
- Implementing this change would break the separability (a good thing)

Comment 4: Credit Cards as Motivation

- Connection between model and data already a bit tenuous because cards are term loans, not credit cards
- Interchange and annual fees: another unmodeled credit card feature
  - Associated with safer borrowers
- When banks lend more to safer credit card borrowers after a + credit supply shock, are they chasing interest or non-interest income?
- How much balance sheet capacity do safe borrowers use up?

	Credit card industry income, 2016 (billions)	Credit card industry income, 2018 (billions)	Credit card industry income, 2020 (billions)
Interest income	$63.4	$78.3	$76
Interchange income	$42.4	$47.0	$51
Cash advance fees	$26.6	$17.7	$17
Annual fees	$12.5	$15.0	$13
Penalty fees	$12.0	$11.0	$12
Enhancement income	$6.3	$9.0	$7
Total income	$163.2	$178.0	$176

Data source: R.K. Hammer/Card Knowledge Factory ®. Data requested by the author.

Minor Comments

- Shock to R_f alone is a shock to the cost of funds. It is not a "monetary policy" shock
  - Authors allow capacity $\bar{L}$ to respond to the shock (reasonable), but other model invariants do too:
    - the expected loss function μ
    - value of borrowed funds V
  - An MP interpretation should only be compared to empirical estimates of the pass-through that absorb these GE effects – hard! I would just relabel.
- Does α need to be constant in the workhorse model? My μ' is around 0 at \$100K but is positive at \$1M.