The importance of credit scores and credit histories in determining individuals’ access to credit is well understood in the literature. This paper models credit histories as a way of aggregating information among various potential lenders, and is the first one to explicitly model how borrowers may affect this information aggregation through sequential borrowing.

We analyze a dynamic economy with multiple competing lenders, who have heterogeneous private information about a consumer’s creditworthiness. We explore how this private information is aggregated through lending that take place over multiple stages. There are two key forces at play. On the one hand, acquiring a loan at an early stage serves as a positive signal—it allows the borrower to convey to other lenders the existence of a positively informed lender (advancing that early loan)—thereby convincing other lenders to extend further credit in future stages. On the other hand, because further lending dilutes existing loans (by increasing the consumer’s probability of default), the early lender takes this into account by charging a higher interest rate on the early loan, which makes the signaling costly. We demonstrate that despite dilution making early loans costly, borrowers may choose to take on small, early loans to signal their credit-worthiness to other lenders. We interpret this mechanism as building a credit history. We also show that information asymmetries can result in inefficiently large loans (relative to the symmetric information benchmark) extended in equilibrium.

Although a large literature has examined consumer credit markets, it has typically assumed exclusivity of debt contracts (see, e.g., Chatterjee et al. 2007, Livshits et al. 2007 and surveys by Athreya 2005 and Livshits 2015). While debt dilution is a prominent feature of recent papers on defaultable debt in international finance (see, e.g., Chatterjee and Eyigungor 2012, forthcoming, and Arellano and Ramanarayanan 2012) the questions studied in that literature are very different from those in the consumer credit literature. The idea of information aggregation among lenders is new to either literature and constitutes our central contribution. Our paper also provides a theory of why borrowers take loans from multiple lenders. This important feature is absent, for example, from a seminal paper by Bizer and DeMarzo (1992), which shows that the anticipation of debt dilution leads to a too large loan at a too large interest rate, but the whole loan can as well be originated by a single lender.

Our study leads us to examine features of consumer credit related to those consumers who hold multiple balances within a given loan category, e.g. multiple credit card balances. Very little is known in general about what types of consumers hold multiple balances or what credit terms, such as limits, these consumers face. For example, which consumers (depending on income, FICO score, home ownership, etc.) are more likely to have multiple revolving balances? Among consumers with multiple balances, how much variation in credit terms does an individual consumer face? Do consumers with multiple balances face different (total) credit limits than consumers with comparable credit histories but only a single revolving balance?

We are more specifically interested in understanding how incumbent creditors adjust their credit terms when consumers initiate credit products with new lenders. One key aspect of the data we plan to exploit is the response of exiting lenders to an individual consumer opening of a new credit line. The dilution channel implies that existing credit cards should tighten credit limits attempting to limit the dilution from the new lender. On the other hand, the information aggregation channel implies the contrary—that incumbent lenders should extend their credit limits in response to new positive information, presumably available to the new lender. Since model parameters, in particular, average credit-worthiness, determine which channel dominates in our model, we are also interested in examining how the response of incumbent lenders varies with consumers’ prior credit histories.

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Chatterjee et al. (2016) also analyze the dynamics of credit scores, but while they consider how repayment behavior affects a borrower’s reputation, we think of borrowing itself as being a signal of the borrower’s credit-worthiness.

One way to interpret the assumption of heterogeneous information is to think about lenders observing the same credit history of the consumer, but employing different, imperfectly correlated, models of credit risk to evaluate it. Alternatively, one can imagine lenders collecting information about the consumer in addition to that contained in the credit report.
References


