Taking Pulse of The Consumer Credit Market: Short-Term Indicators

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Abstract

Access to and availability of new data sources creates significant statistical opportunities in the financial market. This paper presents an approach at Central Statistics Office (CSO), Ireland to produce short-term indicators that will explore the dynamics within the consumer credit market. The short-term indicators are simply based on counting active contracts, customers, and borrowers in the consumer credit market and summing over the outstanding amounts associated with each. The indicators can be broken down by different population cohorts and product portfolios. Cohorts can be defined by age, gender, employment, location of residence, household structure, income, and any other available attributes. We explore how these indicators might respond to real-world events and the potential value they hold in providing insights to the consumer credit market. The paper concludes by presenting a selected subset of indicators.

Keywords: credit market, consumer, data register, loans

1. Introduction

Recent access to and availability of new data sources has created significant opportunities to provide statistical insight in the financial market. One such data source is the Central Credit Register (CCR) which is a national data register administered by the Central Bank of Ireland under the Credit Reporting Act 2013. The Act mandates all credit providers, including banks, credit unions, asset finance houses, and local authorities etc., to report personal and credit information on outstanding loans with a value of €500 or more on a monthly basis. The CCR offers a near real time view of credit lending in the Irish market and can be used to provide useful insights to manage credit risk, safeguard interest of consumers and lenders, introduce economic and social-welfare reforms, and ensure financial stability especially during crisis (see Konečný et al., 2015; Bos et al., 2016; Doko et al., 2021; Bover et al., 2022).

In this paper, we present an approach at CSO, Ireland to produce short-term indicators based on the CCR to monitor the dynamics within the consumer credit market. The approach draws inspiration from methodology developed by Burgess et al. (2000) whereby churn flows were measured from time t-1 to t. A 2009 OECD paper provides a further oversight on how this methodology has evolved and been adapted internationally (Bassanini and Marianna, 2009). This methodology was also adapted by CSO, Ireland using secondary data sources to explore dynamics in the labour market (Dunne, 2011). The resulting job churn statistics fulfilled a need for detailed statistical information about what was happening in the labour market and facilitated decision making in response to the financial crises that hit Ireland in 2008.

The credit and job market have some similarity in structure. A worker can have a number of jobs with different employers and receive compensation for those jobs. Reporting by employers on wages and salaries happens on a periodic basis to the tax authorities providing a rich comprehensive source of secondary data to explore dynamics in the job/ labour market. Similarly, a borrower can have a number of credit agreements with different credit providers underpinned by contract specifying loan arrangements. Credit providers are obliged to report contract information on a monthly basis to a competent authority.

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There are three main objects of interest to us in the CCR – contracts, borrowers and credit provider which are defined as follows:

Contract: is a loan arrangement between an individual and a credit provider. All details regarding contract and its performance information such as credit limit, outstanding balance, amount repaid are reported in the CCR. Broadly, the contracts can be classified into three classes underpinned by differing repayment requirements:

- *Credit Card* credit agreements in respect of a credit amount made available through a credit card or charge card.
- *Instalment* credit agreements requiring repayment by instalment, e.g. personal loan, mortgage, PCPs.
- *Non-instalment* credit agreements with open ended repayment within defined terms, e.g., overdraft, revolving facility.

Borrower: is the person who receives loan from a credit provider under a said agreement. A borrower may enter loan arrangement with more than one credit provider.

Credit provider: is the lender who provides the loan to a borrower and includes banks, credit unions, asset finance houses, and local authorities, National Asset Management Agency (NAMA), high-cost credit providers, and firms which have acquired loan books from Irish financial institutions. Each credit provider allots unique Customer ID to its borrower. Note that a borrower may have more than one Customer ID if they enter into loan arrangement with different credit providers.

2. Methodology

We propose a set of indicators based primarily on contracts, borrowers, and customer ID allotted by credit provider to borrower. Let,

A_{ijt} be the *number of active contracts* for credit type i for cohort j for month t. So, if i is credit card, j is persons aged under 30, and t is February 2021 then A_{ijt} is the number of active credit card contracts from the CCR in February 2021 associated with persons aged under 30.

B_{ijt} be the *number of borrowers* or persons with at least one active contract for credit type i for cohort j in time period t.

C_{ijt} be the *number of customers* that have at least one active contract with one credit provider for the relevant credit type, cohort and time period (ijt). Customers are identified through borrower-credit provider pairings.

We use prefix O and N as notation for obsolete and new counts for contracts, borrower and customers. For a particular time, t:

$O.A_{ijt}$ – number of contracts active in $t-1$ but not in t

$N.A_{ijt}$ – number of contracts active in t but not in $t-1$

$O.B_{ijt}$ – number of borrowers with active contracts in $ij(t-1)$ but not in ijt

$N.B_{ijt}$ – number of borrowers with active contracts in ijt but not in $ij(t-1)$

$O.C_{ijt}$ – number of customers with active contracts in $ij(t-1)$ but not in ijt

$N.C_{ijt}$ – number of customers with active contracts in ijt but not in $ij(t-1)$

With each of these counts, we then associate credit information details such as outstanding balance to calculate overall measures of movement with respect to contracts, borrowers and customers in the marketplace. GF denotes Gross Flows and is calculated as:

$$GF.A_{ijt} = N.A_{ijt} + O.A_{ijt}$$
$$GF.B_{ijt} = N.B_{ijt} + O.B_{ijt}$$
$$GF.C_{ijt} = N.C_{ijt} + O.C_{ijt}$$

NF denote Net Flows (increase) or the change from $t-1$ to t and is calculated as:

$$NF.A_{ijt} = A_{ijt} - A_{ij(t-1)} = N.A_{ijt} - O.A_{ijt}$$
$$NF.B_{ijt} = B_{ijt} - B_{ij(t-1)} = N.B_{ijt} - O.B_{ijt}$$

$$NF.C_{ijt} = C_{ijt} - C_{ij(t-1)} = N.C_{ijt} - O.C_{ijt}$$

Statistical Analysis All data is pseudonymised prior to compilation of indicators – the analysis team only access pseudonymised data. The indicators are compiled from reference month January 2020. The resulting dataset for the periods between January 2020 and June 2022 comprises of nearly 7.5 million contracts for approx. 3 million people. Missing records were imputed where identified and the rest (<0.6%) were ignored. All data was analyzed in R *version 3.5.3* using tidyverse package.

3. Results

To illustrate our indicators, we present results on mortgages and credit cards[2]. Mortgages primarily include loans to buy home, but they can also be second mortgage on the same house or loans for house renovation. Credit cards includes personal credit cards.

Figure 1 presents the average outstanding amount for all home loans which is stable but slowly rising. This is to be expected as home loans typically have a term of many years where the loan is paid back in. As part of the natural churn in home loan market, maturing and exiting loans will have a low outstanding amount and are replaced by new home loans with relatively large outstanding amount. On the other hand, the average outstanding amount for new home loans is quite variable over the same period reflecting uncertainty in the market and society at this time caused by the global pandemic.

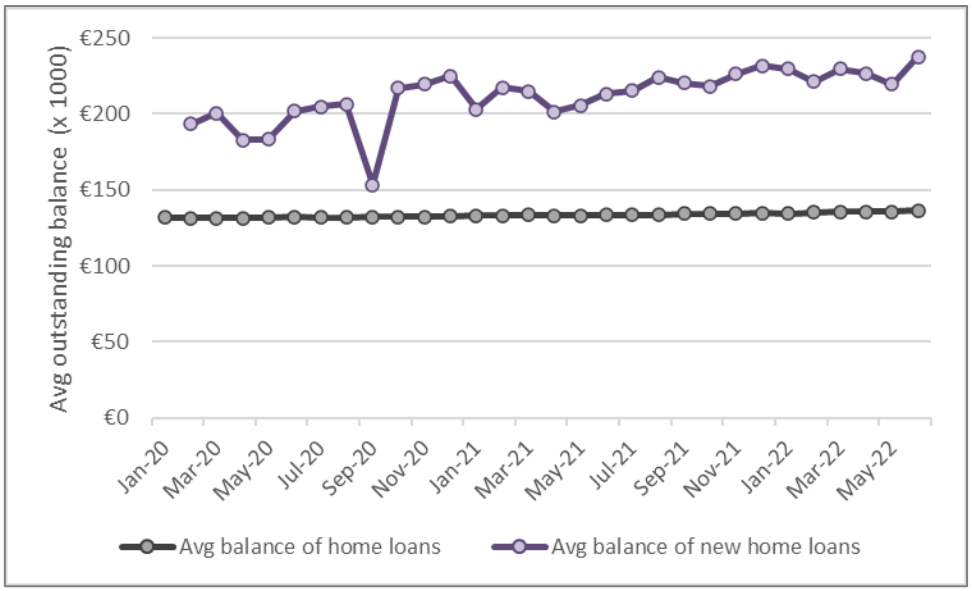

Figure 1: Average outstanding balance for home loans and new home loans, Jan 2020 – June 2022.

Figure 2 presents outstanding balance for credit cards broken down by age and gender for April 2020, 2021, and 2022. The outstanding amount peaks at just over 50 years of age for both males and females for each of the three reference months. In general, there is a drop in the outstanding amount on credit cards for borrowers from April 2020 to April 2021 before a substantial increase in the outstanding amount when compared to April 2022. This pattern or trend is likely linked to consumer behaviour patterns through the pandemic and beyond. The recovery in outstanding amount on credit cards is more pronounced in the younger age cohort (<40 years).

[2] Kindly note that the figures are only meant for illustrative purposes.

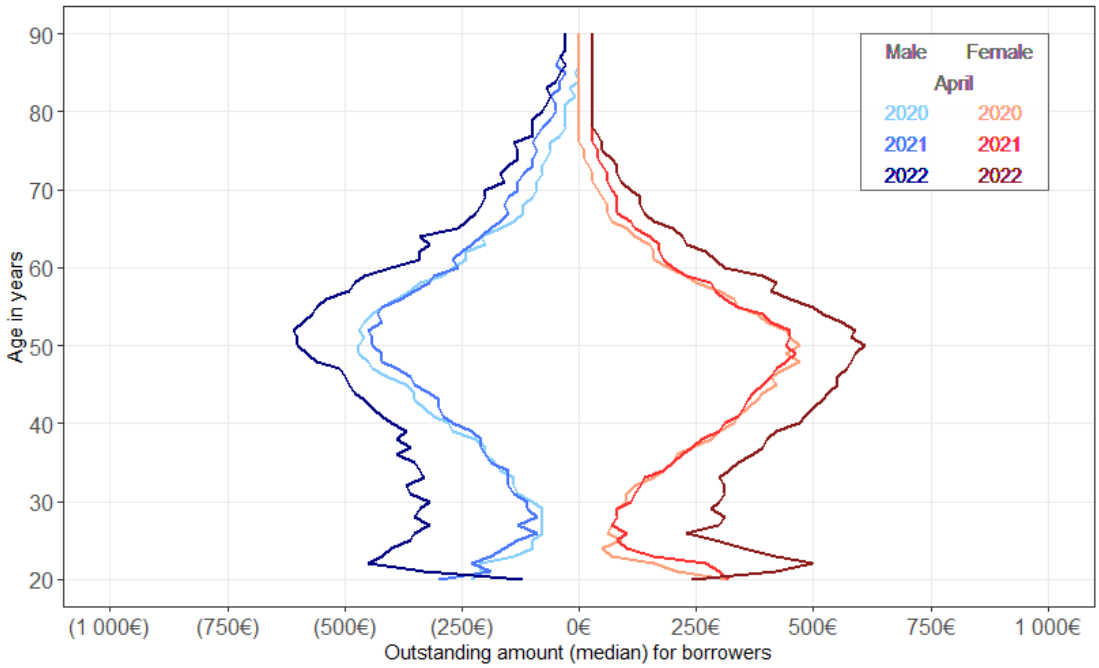

Figure 2: Outstanding amount (median) on credit cards for age groups 20-90 for April 2020, 2021, and 2022[3].

4. Discussion

The proposed short-term indicators act as diagnostic information for the consumer credit market. The indicators are expected to respond to different events or trends in the market. These events/trends could include but are not limited to aggressive marketing, changing trend in mortgage/loan values, bank closures, falling/rising repayments, consolidation in market, and changing borrower behaviour in response to pandemic like COVID. The calculation of gross and net change in borrowers and contracts with their associated outstanding balance information provide insight into the dynamics of the consumer credit market as it responds to events and trends. These indicators should also facilitate earlier identification of new events and trends in the market.

We can anticipate how the short-term indicators might respond to different types of events that can occur in the consumer credit market. For example, if we consider mortgage holders switching credit providers in response to cost-of-living squeeze as reported recently in the media[4], the short-term indicators might be expected to respond as follows:

i. The number of active contracts (A) should not respond to borrowers switching from one bank to another as new contracts are created to replace obsolete contracts. There would however be an increase in the gross flow of contracts (GF.A). Also, simply changing contracts one for one will also have no impact on the net flow of the number of active contracts (NF.A).

ii. The number of borrowers (B) should not respond to this event as borrowers are simply moving from one credit provider to another.

iii. The number of customers (C) may not respond to this event, however if a borrower in moving their mortgage leaves one credit provider as a customer and in bringing their mortgage to a credit provider where they are already a customer then this may result in a fall in the number of customers. Similarly, if they remain a customer of the credit provider after moving their

[3] Kindly note that zero outstanding balance was included in analyzing the data

[4] https://www.breakingnews.ie/business/mortgage-holders-switch-providers-amid-cost-of-living-squeeze-1355223.html

mortgage contract and become a new customer of a new credit provider then we may see a corresponding increase in the number of customers. Note, we should see an increase in the gross flow of customers (GF.A) as borrowers cease being customers of one credit provider and become a customer of another credit provider.

In summary, the key responses/signals that should be observed are increases in GF.A and GF.C. These signals will be more pronounced when focussed on class of credit related to mortgages.

The methodology to compute short-term indicators is based on a simple borrower – credit provider linked data model. Internationally comparable indicators should be feasible in situations where such credit registers exist and can be mapped to this or a similar data model.

The statistical opportunities for analysis based on different cohorts of the population are significantly enhanced if the dataset can be linked with other administrative datasets. For example, income and debt at a person and household level if household composition and income information can add to this dataset.

Currently, the project is considered as a 'proof of concept' with a view to gathering thoughts and opinions from different stakeholders. The authors are also keen to find out about similar projects that may be going on in other countries. Please feel free to respond to the corresponding author for this paper.

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