



Credit supply shocks and the global financial crisis in three small open economies



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ABSTRACT

We investigate the impact of domestic and foreign credit supply shocks on a number of key macroeconomic variables for three small open economies: Australia, Canada and the UK. We find that negative domestic and foreign credit supply shocks together explain, on average, one-third to one-half of the fall in business credit and rise in spreads seen in the three countries during the financial crisis; other identified non-credit-supply shocks explain the rest. Credit supply shocks also explain around one-sixth of the fall in output in the three countries, and one-quarter of the fall initially seen in UK inflation. This suggests that credit supply shocks played an important role in the financial crisis, but not a dominant one.

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1. Introduction

Business credit growth depends on the demand for and the supply of credit, both of which interact with the macroeconomy. During periods of high growth, businesses tend to increase their use of credit, while in the wake of economic downturns borrowers can become conservative and cut back their demand for credit; lenders, too, can become more cautious, charging higher spreads or rationing credit (Fig. 1). There exist episodes in history where the supply and demand drivers are reasonably clear. Financial deregulation, which occurred in many advanced economies during the 1980s, is an example where a supply constraint was lifted, resulting in strong credit growth. The merger and acquisition boom of the early 2000s is an example of demand-led growth. For the most part, however, econometric identification schemes are needed to disentangle the two factors.

A number of authors have analyzed the importance of credit shocks (see for example Helbling et al., 2011; Gilchrist et al., 2009 for two widely cited papers). Our analysis is closely related to this growing literature but distinct in its approach. In particular, we use a sign-restricted VAR with domestic and foreign blocks to identify credit supply (and other) shocks in three small open economies (Australia, Canada and the UK), and their impact on credit, credit spreads, GDP and inflation, among other key variables. Three other closely related papers, Helbling et al. (2011), Meeks (2012) and Fornari and Stracca (2013), also use sign restrictions to identify credit shocks, but they differ from us in a few important dimensions. First, we identify a rich set of macroeconomic shocks based on a simple argument regarding the effect that various demand, supply and other shocks will have on observed quantities and prices (Helbling et al. identify only credit supply and productivity

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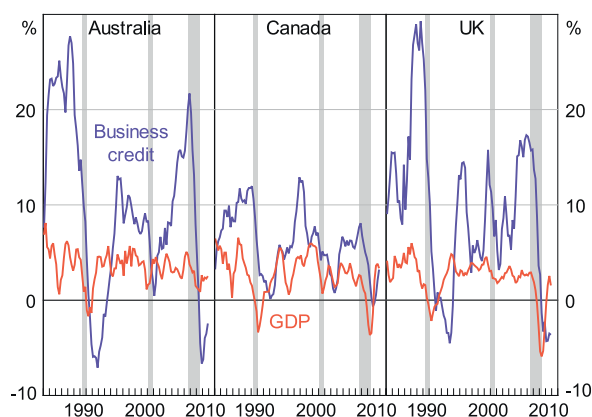


Fig. 1. Business credit and real GDP year-ended growth. Note: Shaded areas refer to US recessions as dated by the NBER.

shocks; Meeks identifies only a credit shock; Fornari and Stracca identify aggregate demand, financial and monetary policy shocks). Our identification strategy allows us to gauge the importance of not just domestic and foreign credit supply shocks, but also domestic and foreign credit demand shocks, as well as other standard shocks that are left largely unidentified in the other papers. Moreover, we use the quantity of credit and credit spreads to identify different types of credit shocks. Helbling et al. also use the quantity of credit, along with credit spreads and default rates, to identify credit shocks, whereas Meeks uses only the (US) credit spread and default rate; Fornari and Stracca follow an alternative strategy by identifying a financial shock that has an impact on the quantity of credit and the relative share price of the financial sector. Finally, we focus on small open economies that are affected by exogenous foreign (US) shocks. Meeks focuses only on the US, while Helbling et al. and Fornari and Stracca consider a larger class of countries that includes both small open economies and large, relatively closed economies without distinguishing between them.¹

We find that, on average, negative domestic and foreign credit supply shocks together explain one-third to one-half of the fall in business credit and rise in spreads seen in the three countries during the financial crisis, with identified non-credit-supply shocks (i.e., shocks that would be likely to affect credit demand) explaining the rest. Credit supply shocks explain around one-sixth of the fall in output in the three countries, and one-quarter of the fall initially seen in UK inflation. This suggests that credit supply shocks played an important role in the financial crisis, but not a dominant one.

Although not the focus of our paper, we note that credit supply and credit demand shocks together explain around one-tenth of US output variation over our sample, of which two-thirds is due to credit supply shocks. This is in line with Helbling et al. who find that credit shocks explain around one-tenth of variation in US and global GDP, as well as Fornari and Stracca who find that financial shocks explain around one-tenth of the variation in their pooled GDP variable, but less than Meeks who finds that credit shocks explain around one-fifth of the variation in US GDP. Regarding just the recession of 2007–2009, we find that credit shocks explain around 20% of the fall in US output; this sits between the estimates of Helbling et al. (around 10%) and Meeks (three-fifths).

2. Model and data

To extract the various shocks underlying movements in the data we estimate the following sign-restricted VAR:

$$\begin{bmatrix} w_t \\ d_t \end{bmatrix} = \alpha x_t + \sum_{i=1}^p A_i \begin{bmatrix} w_{t-i} \\ d_{t-i} \end{bmatrix} + A_0 \begin{bmatrix} \epsilon_t^w \\ \epsilon_t^d \end{bmatrix} \quad (1)$$

where w_t and d_t are vectors of endogenous variables, x_t is a vector of exogenous variables, and the matrix A_0 is the contemporaneous impact matrix of the vectors of mutually uncorrelated disturbances. There are eleven variables in the model and they can be divided into two groups. The first five variables $w_t = (y_t^w, \pi_t^w, r_t^w, sp_t^w, cr_t^w)'$ capture the world economy, proxied by the US: y_t^w is quarterly US non-farm GDP growth; π_t^w is quarterly US core inflation; r_t^w is the quarter-average Fed Funds rate; sp_t^w is the quarter-average BAA corporate bond spread to US treasuries; and cr_t^w is quarterly growth in US business credit. With the addition of q_t as the quarterly change in the real domestic/USD exchange rate, the second group of variables $d_t = (y_t^d, \pi_t^d, r_t^d, sp_t^d, cr_t^d, q_t)'$ are similarly defined but related to the domestic economy, being either Australia, Canada or the UK.²

¹ The small open economy assumption is important. For example we find that foreign shocks explain around 50% of output variation in Australia, in line with the estimate of [Dungey and Pagan \(2000, Table 4\)](#); for Canada we find a figure of 67%, a little higher than the 60% found by [Bhuiyan \(2012, Table 4\)](#); while for the UK we find a figure of 55%, in line with the estimate of [Spencer and Liu \(2010, Fig. 6b\)](#).

² Due to data limitations some definitions are different between countries: GDP (farm and non-farm) is used for Canada and the UK; RPIX inflation is used for the UK; and the spread between large business variable rates and 3-month money-market rates is used for Australia. See data appendix for more details on the data series used.

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