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# Asymmetric interest rate pass-through in the U.S., the U.K. and Australia: New evidence from selected individual banks

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ABSTRACT

This paper provides new evidence on asymmetric interest rate pass-through in the U.S., the U.K. and the Australian economies by using the Nonlinear Auto-Regressive Distributed Lag model, central bank interest rates, lending and deposit interest rates from selected banks, spanning the period 2000–2013. The results provide evidence that corroborates the asymmetric pass-through market predictions. Robustness tests are also performed by splitting the sample period into that prior to and after the recent financial crisis. The new findings document that the asymmetric character of pass-through remains active only in the case of Australia.



## 1. Introduction

The interest rates set by central banks have effects on the behaviour of borrowers and consequently on the real economy. By contrast, prices set by banks influence their profitability and soundness and thus the financial stability (De Bondt, 2005). There is abundant evidence that banks play an important role in the transmission of monetary policy. Borio and Fritz (1995) argue that '... *bank lending rates are a key, if not the best, indicator of the marginal cost of short-term external funding in an economy*'. A large number of papers have attempted to identify the determinants of the monetary transmission mechanism by exploiting asymmetries in the effects of monetary policy on output and prices across countries (Mihov, 2001; Arnold and Vrugt, 2004; Dedola and Lippi, 2005; Peersman and Smets, 2005; among others).

The goal of this study is to investigate whether the adjustment of interest rates by commercial banks in response to changes in central bank (official) interest rates is asymmetric. The interest rate is an important variable in the transmission mechanism of monetary policy. For the effective operation of monetary policy, the response of interest rates to monetary easing and tightening should be symmetric. It is also necessary that a change in the official interest rate is transmitted to other (commercial) interest rates quickly, while the magnitude of the changes that is passed on to these rates should be large

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enough to influence aggregate demand (Lim, 2001). However, financial institutions need to smooth out the transmission of official interest rates in their retail rates offered to their customers, based on the presence of a cost of changing interest rates, which deters banks from making changes in one direction that may need to be reversed later (Barbier de la Serre et al., 2008). In addition, these financial institutions must anticipate the future direction of official interest rates, based on their need to refinance their loans they plan to offer in the future. If the interest rate pass-through is incomplete, this could violate the rule through which monetary policy is implemented and, thus, its primary goal would fail to stabilise the economy (Marotta, 2009). Moreover, asymmetric interest rate adjustments have significant welfare and policy implications. In the event that interest rates adjust upward faster than downward, commercial banks are in a position to generate large profits at the expense of their customers. Consequently, the asymmetric adjustment of interest rates would suggest that customers are not gaining from any interest rate reduction as they would under conditions of symmetry.

For monetary policy to have the desired effects on the real economy, when monetary authorities change the official interest rate, it is expected that this change will be completely reflected in short-term retail bank rates, which will subsequently be passed onto long-term rates as well. Interest rates, however, may be rigid due to a number of factors which include: price leadership (Stigler, 1947); imperfect information (Stiglitz, 1979); imperfect competition (Kopecky and Van Hoose, 2012); menu costs (Barro, 1982); transaction costs (Obstfeld and Taylor, 1997); differences in financial structure (Cecchetti, 1999); central bank intervention (Mark and Moh, 2003); asymmetric adjustment in real exchange rates (Paya et al., 2003); and, the downward rigidity of prices (Rhee and Rich, 1995).

To the empirical ends of this paper, the U.S., the U.K, and the Australian economies are used as a basis for the analysis of the interest rate pass through from the central bank official rate to retail bank rates. The prominent reason for selecting this country sample is that the structure and regulation of the banking system varies across these three countries. In particular, the U.S. banking industry has been historically less concentrated vis-à-vis those in the U.K. and Australia. However, bank consolidation has led to a change in this trend in the U.S., with 45% of all deposits being held by the four largest banks, i.e. Bank of America, JP Morgan Chase, Wells Fargo and Citigroup (VanHoose, 2013). Australia has a highly concentrated banking system in which the big four, i.e. Commonwealth Bank, National Australia, Australia–New Zealand (ANZ) Banking Corporation and Westpac, dominate the domestic banking system with assets standing at $3 trillion in 2013 (KPMG, 2013), while they own 84% of residential mortgages and 81% of household deposits (Gericho, 2014). Similarly, there is a high level of asset concentration in the banking system in the U.K. The big four in the U.K. banking system, i.e., Barclays, HSBC, Lloyds Banking Group, and the Royal Bank of Scotland Group, jointly share 75% of the market. Contrary to the Australian case, however, there is higher competition in the UK banking system and, therefore, profitability and interest margins are lower than those in Australia (Bakir, 2013). The degree of concentration has substantial implications for the efficiency of monetary policy: large banks can be better insulated to monetary policy decisions (Kopecky and Van Hoose, 2012), which diminishes the role and the impact of such decisions on real economy.

While the U.K. and Australia have adopted a policy of inflation targeting regime, the U.S. has not introduced any explicit policy of inflation targeting.[1] Australia's inflation target is within a range of 2–3%, while the U.K. inflation target is 2% (as in 2014). The primary advantages of inflation targeting-related monetary policy is that it is easily understood by the public and it is substantially transparent. Central banks in inflation-targeting regimes make public announcements on changes in interest rates, and, are, therefore, accountable to both the government and the public. Cecchetti (1999) argues that the monetary transmission mechanism can vary across countries with different financial structures, sizes and concentration. Therefore, the question arises as to whether the transmission mechanism of monetary policy in the U.K. and Australia is different from that in the U.S. Within this perspective, expectations can play a significant role in the pass through mechanism. Kopecky and Van Hoose (2012) and Banerjee et al. (2013) argue that the interest pass through process highly depends on expected interest rates. Such expectations may also explain the delay in retail interest rate adjustments in response to changes in official interest rates, as banks could wait to ensure that expectations are realised before adjusting their retail rates.

More recently, the monetary transmission mechanism could also have changed as a result of the financial crisis. The Australian financial system documented stronger resilience to the financial crisis, compared to the U.S. and the U.K. cases. While the other countries reduced their interest rates in response to the financial crisis, Australia was the only country to increase interest rates after the financial crisis. Currently, Australia's official interest rate stands at 2.5%, while U.K. and U.S. rates are 0.05% and 0.08%, respectively (Bloomberg, 2014). According to Bakir (2013), '*the informal institutions in prudential and monetary policy in both the U.S. and the U.K. reinforced excessive risk taking by banks . . .*', whereas Australia's more conservative stance reflected complementarity between the Reserve Bank and the prudential regulator, that is the Australian Prudential Regulation Authority (APRA). Additionally, Australia has one prudential regulator, compared to the U.S. In the latter case, such prudential regulation has been more fragmented, making it more difficult to regulate lending practices. Australia's relative success during the financial crisis can be also attributed to the 'four pillars' policy which prevents mergers or acquisitions between the big four, thus, limiting economies of scale and scope, while allowing for greater global integration (Bakir, 2013).

[1] Moreover, these two countries have very close relations with the U.S. Events in the U.S. influence Australia and the U.K., with the stronger impact occurring in the case of the U.K. economy (McLean, 2004; Wallace and Phillips, 2009). This is primarily because the U.S. is Britain's largest export market and the primary destination for British overseas investment (Foreign and Commonwealth Office, UK 2008). The U.S. is Australia's fourth biggest export market, its second biggest import market and its largest investor (Department of Foreign Affairs and Trade, Australia 2014).