Institution: BRUNEL UNIVERSITY (H0113)

Unit of Assessment: 18 – Economics and Econometrics

Title of case study: Research into Macroprudential Policy

1. Summary of the impact (indicative maximum 100 words)

Work on financial stability from 2002 to 2008 by Davis (Brunel 2000 to date), Barrell, (NIESR to 2011, Brunel from 2011) and Karim (Brunel staff from 2007) led in 2008 to the Financial Services Authority commissioning a report on the optimal regulation of bank capital and liquidity. The objective was to establish the optimal percentage increase in capital and liquidity ratios that would reduce the probability of financial crises to acceptable levels. It produced a recommendation that capital should be increased by 4 per cent, and this result was adopted by the G10 Central Bank Governors and the Bank for International Settlements in Basel as the core basis for changes in regulation.

2. Underpinning research (indicative maximum 500 words)

Following a 2002 European Commission project on Basel II, Barrell and Davis (in Barrell et al 2006 and elsewhere) focused on the shortcomings of European regulation by looking at the causes of crises and their associated costs. Karim's Brunel financed PhD (2008) outlined three approaches to Early Warning Systems (EWS) for banking crises, logit, signal extraction and binomial recursive tree. Davis and Karim (2008) showed logit was superior in all respects. However, the variables in extant EWS were unable to predict the subprime crisis, suggesting EWS need to be estimated on subgroups of countries rather than global samples, and with an extended set of variables. Work by Davis and Zhu (2011) had several years earlier suggested a link to commercial property prices, and lack of data in large samples of countries constrained researchers from looking for the effects of capital and liquidity.

By 2008, Barrell, Davis and Karim were established experts in various aspects of predicting financial crises and analysing their impacts. At the time this was a specialist field as many in the subject felt crises were unlikely to happen. Once the crisis of 2007-8 began to unfold the Financial Services Authority needed research on the causes and consequences of crises for the Turner Report, and they approached this team. Around £200,000 of research money was obtained without competition. The ESRC also supplemented the funding (without competition) by £30,000. The FSA requested intensive work on optimal bank capital and liquidity for Basel III. We used the funding to publish papers in leading journals, and as a foundation for competitively obtained ESRC funds.

The core of our work demonstrated for the first time that variables that were under the control of the regulator affected the incidence of crises, and hence there could be regulatory policies that reduced crises incidence. These policies were however not costless. In an EWS for OECD countries, we found that bank capital, bank liquidity and house prices, not used in earlier work, dominated all the other variables (Barrell et al 2010). In a report for the FSA (Barrell et al 2009 Occasional Paper 38) we estimated a banking sector model for the UK, with an impact of capital and liquidity on spreads between lending and borrowing rates. Using a production function approach we showed that costs from widening spreads affect investment and potential output. The benefits of increased standards were shown to be reducing the risk of the long run scarring of the economy due to higher risk premia after a crisis, which arises in turn from a lower probability of a banking crisis. We found a positive net benefit for a 2-6 percentage point increase in capital and liquidity ratios. A number of other policy relevant papers followed, for instance assessing off balance sheet impact on crisis probabilities using non-interest income (Barrell et al 2012)

Subsequent follow-up research on crisis prediction and bank behaviour, including a further ESRC grant for Karim for work on Emerging Market Countries have further underpinned the major impact of our work on the global bank regulatory reform. Barrell and Karim investigated determinants of crises in emerging markets, and used the ESRC funded work along with more OECD work when they presented work on macroprudential policy and credit at the Bank of England (Barrell and Karim 2013), the UN and elsewhere.

3. References to the research (indicative maximum of six references)

Barrell R, Davis E P and Pomerantz O (2006), "Costs of financial instability, household-sector

balance sheets and consumption", *Journal of Financial Stability*, Volume 2, Issue 2, June 2006, Pages 194-216 (2 rated journal) http://dx.doi.org/10.1016/j.jfs.2006.05.001

Davis E P and Karim D (2008), "Comparing early warning systems for banking crises", *Journal of Financial Stability*, Volume 4, Issue 2, June 2008, Pages 89-120 (2 rated journal but 32 citations, putting it in the top 1% of papers in economics) http://dx.doi.org/10.1016/j.jfs.2007.12.004

Barrell, R., Davis, P., Karim, D., Liadze, I., (2010). "Bank regulation, property prices and early warning systems for banking crises in OECD countries". *Journal of Banking and Finance* (3 rated journal, 18 citations, top 5 per cent) http://dx.doi.org/10.1016/j.jbankfin.2010.02.015

Davis E P and Zhu H (2011), "Bank lending and commercial property cycles: Some cross-country evidence", *Journal of International Money and Finance*, 30, 1-21 (3 rated journal) http://dx.doi.org/10.1016/j.jimonfin.2010.06.005

Barrell, R and Karim, D., (2013) 'What should we do about (Macro) Pru? LSE Financial Markets Group Special Paper no 217 http://ideas.repec.org/p/fmg/fmgsps/sp217.html

This last paper was funded by a competitively awarded ESRC grant in 2011 for £103,000 for Karim and Barrell at Brunel to undertake follow-up research Grant No. PTA – 053 – 27 – 0002, entitled "An Investigation into the Causes of Banking Crises and Early Warning System Design".

4. Details of the impact (indicative maximum 750 words)

Impact comes in two forms – where you know that you have it, and where you are still heavily involved in the debate with policy makers and the polity. We have impact in both senses. Our work on capital and liquidity in the determination of banking crises was commissioned by policy makers and used by them. The more capital a banking system has, the less likely it is to experience a crisis, and the same is true with liquidity. The idea may have been obvious to many in the profession but we were the first to provide good supporting evidence, and to discuss it at length in all relevant policy fora. The initial work is still widely referred to by the IMF (Financial Stability Report, April 2013) and the Bank of England (Working paper February 2013). Our more recent contributions are still under discussion. We have been influencing policy changes in the area of controls on credit.

This work is of public interest given the huge costs of the recent financial crisis, in terms of fiscal expenditures, lost output and unemployment. The UK authorities have seen our work at constituting the leading UK research on bank regulation at a macro level. In the key policy paper from the FSA, the Turner Report (FSA 2009a) and its background Discussion Paper (FSA 2009b), our work underpins many of the policy recommendations – as they were designed to do. Some quotations and web references are provided in Section 5.

A further key impact however was at an international level to the Basel Committee (2010a and b – see section 5) which provides an assessment of both the net economic impact of stronger capital and liquidity reforms once implementation is complete and the macroeconomic implications during the transition to full implementation. There are extensive references to Barrell et al (2010) in this work.

The Basel Committee's assessment of the long-term economic impact highlights the benefits from increasing the minimum capital and liquidity requirements from their current levels that exceed the potential output costs (Barrell et al 2009). The paper also highlights that length of systemic banking crises is inversely related to the aggregate level of the two types of buffers prior to the crisis In its submission to the same exercise the Bank of Japan not only reference our work but also use our data and adopt our methodology for assessing crisis risk.

The Basel Committee's assessment of the macroeconomic transition costs, prepared in close collaboration with the IMF, concludes that the transition to stronger capital and liquidity standards is likely to have a modest impact on aggregate output (referencing Barrell et al 2009). The Basel Committee's proposals for counter cyclical capital buffers have been critiqued from the standpoint of our own research in a response to the consultative document. We contend that the recommendation to use credit as a guide to countercyclical bank capital regulations is flawed in the light of our finding that it is not a useful crisis predictor in OECD countries. Barrell and Karim (2013)

as well as the original BIS work has been referred to by the Bank of England on this issue, and remains the centre of a live debate. Barrell and Karim have been invited by economists from HM Treasury to comment in the November 2013 Treasury consultation on the relevant directive, and a text has been provided.

Our work has been extensively presented in official fora including at the European Central Bank (Barrell 2011, Davis, 2010 and 2012, and Karim 2012), Bank for International Settlements (Barrell 2010 and 2011) , FSA (various), FMG at LSE (Barrell, 2010, 2012, 2013), the OECD (Barrell 2010, 2012), HM Treasury (various), Bank of England (Barrell 2010, 2011 and 2012), the Norwegian Central Bank (Barrell 2011) the Bank of Ireland (Barrell 2012) and the UN (Barrell 2013). The European Commission asked the authors to model a toolkit for desk officers who monitor financial stability using signal extraction (2010). The three authors also impact on international regulators and central bankers via presentations at annual conferences held by Central Banking Publications.

There have been a number of further spinoffs. In 2011, Davis was asked to join the IMF's Advisory Group on Macroprudential Policy and Barrell has joined a group of advisors to Andy Haldane at the Bank of England. Karim is invited to present to central bankers at the Caribbean Centre for Money and Finance in 2013.

5. Sources to corroborate the impact (indicative maximum of 10 references)

- Letter received from Deputy Director, Banking and Financial Sector Analysis, HM Treasury
- Letter received from Head of Prudential Policy Division, Financial Stability, Bank of England

The Turner Report (FSA 2009a http://www.fsa.gov.uk/pubs/other/turner_review.pdf) commented that "The quality and quantity of overall capital in the global banking system should be increased, resulting in minimum regulatory requirements significantly above existing Basel rules. The transition to future rules should be carefully phased given the importance of maintaining bank lending in the current macroeconomic climate." Barrell et al (2009) provided the analysis underlying this assertion (FSA 2009b http://www.fsa.gov.uk/pubs/occpapers/op38.pdf), including also the need to introduce change gradually to avoid credit rationing. The work was presented by Barrell at the BIS in Basel in May 2010, and was acknowledged as one of the bases for the reform of the global banking system

(1) The (2010a) Basel Committee's assessment of the long-term economic impact finds that there are (http://www.bis.org/publ/bcbs173.pdf)"clear net long term economic benefits from increasing the minimum capital and liquidity requirements from their current levels in order to raise the safety and soundness of the global banking system. The benefits of higher capital and liquidity requirements accrue from reducing the probability of financial crisis and the output losses associated with such crises. The benefits substantially exceed the potential output costs for a range of higher capital and liquidity requirements (as shown in Barrell et al 2009). The same Barrell, Davis, Karim, Liadze model is the first in the technical Appendix "a brief summary of the crisis prediction/simulation models" as are results for impact of regulation on crisis probability and cost. There are at least 27 documents with references to the Barrell, Davis and Karim work on the BIS website.

(2) The (2010b) Basel Committee's assessment of the macroeconomic transition costs, prepared in close collaboration with the IMF (http://www.bis.org/publ/othp10.pdf)", concludes that "the transition to stronger capital and liquidity standards is likely to have a modest impact on aggregate output". Barrell et al (2009) was extensively referenced in this work. Our equation for the consumer lending wedge was used as an example.

Barrell R, Davis E P, Fic T, Holland D, Kirby S, Liadze I (2009), "Optimal regulation of bank capital and liquidity: how to calibrate new international standards, FSA Occasional Paper No 38 http://www.fsa.gov.uk/pubs/occpapers/op38.pdf

There are number of references to the Barrell, Davis, Karim papers on the IMF website, for instance http://www.imf.org/external/np/pp/eng/2013/061013b.pdf and Global Financial Stability Report 2012 October http://www.imf.org/external/pubs/ft/gfsr/2012/02/pdf/text.pdf

There are a number of references to these papers on the Bank of England website, with Barrell

and Karim (2013) above discussed in the first document.

http://www.bankofengland.co.uk/financialstability/Documents/fpc/policystatement130114.PDF