

## Impact case study (REF3b)

<b>Institution:</b> <b>University of Glasgow</b>
<b>Unit of Assessment:</b> <b>C18 Economics and Econometrics</b>
<b>Title of case study:</b> <b>Building Capacity and Advising IMF, Central Banks and Policy Makers on Economics of Exchange Rates</b>
<b>1. Summary of the impact</b> (indicative maximum 100 words)

Professor Ronald MacDonald has developed leading research and economic models for applied exchange rate analysis. This body of work has underpinned training and capacity-building at the IMF Institute in Washington DC, reaching approximately 250 economists and policy-makers of financial institutions from around the world. Additionally, the research has formed the basis of advice to government agencies, such as the General Secretariat for Development Planning Qatar in 2008.

MacDonald's work has been cited by central bankers and IMF economists in working papers and his expertise led to his being appointed Monetary Advisor for the IMF. In this capacity, he has provided research-driven analysis and recommendations to central banks on their approaches to exchange rate regimes, with one notable example being the Central Bank of Costa Rica in 2010.

<b>2. Underpinning research</b> (indicative maximum 500 words)
--

Professor MacDonald (Adam Smith Professor of Political Economy at the University of Glasgow since 2005) has cultivated a body of research expertise in applied exchange rate analysis through econometric techniques. MacDonald developed the Behavioural Equilibrium Exchange Rate (BEER) approach to currency assessment jointly with Peter Clark at the IMF. In essence, the BEER approach takes a widely accepted economic model of the real exchange rate and attempts to approximate that model to get an estimated value of a country's equilibrium exchange rate. BEER has been widely used by central banks and the wider financial community to assess the degree of misalignment of major currencies and MacDonald has continued to write instructively on the approach (1).

Since moving to the University of Glasgow in 2005, MacDonald has refined and developed this BEER approach in a number of significant new directions. For example, in the monograph 'Exchange Rate Regimes and Monetary Union for the Gulf States', published in 2010 with Abdulrazak Al Faris (Professor of Economics, UAE University), MacDonald addressed equilibrium exchange rate issues in the context of countries planning to join a currency union, with a particular emphasis on resource-dependent countries in the Gulf area. MacDonald's contribution to the publication focused on exchange rate regime issues for either the UAE *dirham* or for the proposed Gulf Cooperation Council (GCC) currency within that context (2). The GCC is a political and economic union of Arab states bordering the Persian Gulf, namely Kuwait, Oman, Qatar, Bahrain, Saudi Arabia and the United Arab Emirates. MacDonald's research insights into these issues covered the different exchange rate regime options as they would best suit the different states in the GCC, which would need to be considered if the states were to form a currency union.

In developing his research on the BEER model, MacDonald has strongly argued that for exchange rate regimes to be effective, they must be credible and offer countries an effective adjustment mechanism. MacDonald co-authored *Credibility in Regimes of the International Monetary System* with Michael Bordo in 2012; this work developed equilibrium exchange rate issues in relation to credibility issues for countries deciding to participate in a fixed exchange rate regime. As well as editing this collection with Bordo, MacDonald co-authored all 10 chapters in the publication, drawing on his research expertise on economic exchange rate regimes as well as an historical economic perspective on international monetary reform (3).

MacDonald has undertaken research and writing with Mathias Hoffmann of the University of Zurich to demonstrate empirically how real interest differentials, another crucial determinant of the BEER,

## Impact case study (REF3b)

can impact on real exchange rates (4). MacDonald's unique contribution to this research stems from his instrumental role in establishing and advancing the BEER approach.

Additionally, MacDonald has worked with Luca Ricci of the IMF to provide a theoretical framework for how productivity difference across countries (a key element in the BEER approach) impacts on the equilibrium exchange of a country and how productivity effects can have apparent perverse effects compared to the traditional view. This work originally formed the basis of an IMF Working Paper, which the researchers later published in the *Journal of Macroeconomics* (5); it provides a further example of the way that MacDonald has contributed his exchange rate expertise to theoretically and empirically develop the BEER model during his time at the University of Glasgow.

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

1. MacDonald, R. (2007). *Exchange Rate Economics: Theories and Evidence*, London: Routledge. ISBN 0415125510, [9780415125512](#) [available from HEI]

2. MacDonald, R. and A. Al Faris. (Eds). (2010). *Currency Union and Exchange Rate Issues, Lessons for the Gulf States*, Edward Elgar. [In particular, Chapter 6: International Experiences in Operating Exchange Rate Regimes: Drawing Lessons from the United Arab Emirates]. [ISBN 9781848448575](#) [available from HEI]

3. MacDonald, R. and M. D. Bordo. (Eds). (2012). *Credibility and the International Monetary Regime: A Historical Perspective*, Cambridge University Press. [ISBN: 9780521811330](#) [available from HEI]

4. MacDonald, R and M. Hoffman. (2009). 'Real exchange rates and real interest rate differentials: A present value interpretation' *European Economic Review*, Vol 53(8), 952-970 (doi: [10.1016/j.eurocorev.2009.04.013](#)) (Output published in *Journal operating Rigorous Peer-Review Process*; *Journal Article Influence 2009: 1.614*). [REF 2]

5. MacDonald, R. and L.A. Ricci. (2007). "Real exchange rates, imperfect substitutability, and imperfect competition", *Journal of Macroeconomics*, 29, 639-664 doi: <http://dx.doi.org/10.1016/j.jmacro.2005.11.007> (Output published in *Journal operating Rigorous Peer-Review Process*).

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

#### **Training the World's Economic Policy-Makers at IMF Institute**

On the basis of his body of work on the area of Exchange Rate Regimes, MacDonald was invited to prepare and deliver an Economics of Exchange Rates Course as part of the IMF Institute's Capacity Development internal training programme over the period 2005-2010.

The IMF Institute for Capacity Development was established in 1964 to provide training in economic management to officials of the IMF's member countries. The internal programme provides training over a wide range of topics relevant to IMF economists. The objective of the programme is to ensure that Fund economists at all levels stay at the forefront of the profession and remain current on the major issues of the day. By drawing on his research expertise to design this training at the IMF Institute, MacDonald contributed to these capacity development objectives on an ongoing basis.

MacDonald designed and oversaw the five-day training course on Economics of Exchange Rates, delivered on five separate occasions to approximately 250 mid- to senior-level officials involved in work on monetary and exchange rate policy. The participants were both Washington-based and also drawn from IMF member country central banks. MacDonald delivered the training course in the Institute's training centre in Washington DC. The course was based on MacDonald's research, which he developed in the 2007 edition of his book *Exchange Rate Economics: Theories and Evidence*; this publication acted as the core course text in 2007, 2008, 2009, and 2010 [1].

### Impact case study (REF3b)

The success of the training provided by MacDonald is evidenced by the fact that he was invited to return to provide the training on five successive occasions whilst at the University of Glasgow. Course feedback demonstrates how useful the attending delegates thought the training would be for their working practices in Central Banks and Government departments in different countries throughout the world. MacDonald's course regularly scored between 4 and 5 out of 5 in evaluations by course participants [2].

MacDonald's research-driven teaching and training has therefore extended well beyond the University of Glasgow to international economists and policy makers.

#### **Role of Monetary Advisor with IMF**

MacDonald regularly engaged with the IMF throughout the course of his academic scholarship and career; he was appointed to the role of Monetary Advisor by the IMF in 2010 and sent on a mission to the Central Bank of Costa Rica that same year.

During his one-week mission to the central bank in San Jose, MacDonald's main role was to advise the central bank on the various methods it was using to calculate its equilibrium exchange rate. Over the course of the trip MacDonald was provided with a range of information on the monetary and exchange rate regimes in existence in Costa Rica and the methods used to calculate a range of different measures of the equilibrium exchange rate. On his return to the UK, MacDonald wrote a 30-page report documenting his recommendations for improving the Costa Rican methods of exchange rate assessment. MacDonald's report drew from his research-driven expertise on exchange rate regimes and similar work he had undertaken for other central banks. Key recommendations of the report relating to equilibrium exchange rate issues were finalised and accepted by the Central Bank in Costa Rica [3].

As well as underpinning his advice and recommendations to the IMF, MacDonald's research has regularly been cited in IMF Working Papers by both the Research Department and the Policy Review and Development Department. IMF Working Papers are designed to stimulate practitioner debate and discussion of key areas of research within the IMF [4; 5].

#### **Advice to Foreign Government Agencies on Exchange Rate Regimes**

MacDonald has successfully engaged policy-makers with his research through a series of presentations at central banks and foreign governments around the world [6]. The BEER model – which MacDonald established and has continuously developed – has been consistently used by economic institutions such as the European Central Bank (ECB). MacDonald's research has also been widely cited by central bankers within the ECB who work on equilibrium exchange rate modelling. For that purpose, the Principal Economist at the European Central Bank explains that, '*BEER models have been implemented to assess the misalignment of the euro against the US dollar, the Japanese yen, the pound sterling and in effective terms. BEER models (among others) have also been used to assess the conversion rates of currencies in the European Exchange Rate Mechanism (ERM II)*' [7].

In addition, MacDonald's research-driven expertise has been sought by international governments and economic policy-makers. In 2008, for example, the General Secretariat for Development Planning (GDSP) (now the Ministry of Development Planning and Statistics) in Qatar commissioned MacDonald to prepare a report on the *Monetary and Exchange Rate Regime Options for Qatar*. The GDSP is a governmental agency mandated to devise a national development vision for Qatar; this includes Social, Economic, Human and Environmental Development. When the report was commissioned the Gulf countries – Qatar included – were linking their currencies to the US dollar. However, at that time the US dollar was depreciating sharply against non-Gulf currencies, and this, combined with a high price for oil, had serious implications for the operation of macroeconomic policy. Professor MacDonald canvassed a number of approaches to monetary and exchange rate management and his analysis provided essential context for the preparation of Qatar's [National Development Strategy 2011-2016](#).

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

Training economic policy-makers

1. (Former) Head of the IMF Institute can corroborate the impact of MacDonald's research-based teaching. [Contact Details Provided]

2. Copy of IMF Institute Course Evaluation Form for MacDonald's course in Economics of Exchange Rate Regimes. [Available from HEI]

Role as IMF Monetary Advisor

3. Given the sensitive nature of the information contained in Professor MacDonald's Report, it is not possible to identify specific recommendations. Division Chief of Monetary Affairs at the IMF can provide a corroborative statement about the report and the acceptance of its recommendations by Costa Rica Central Bank. [Contact Details Provided]

4. See, e.g. Zalduenso, Juan. (June, 2008) IMF Working Paper, *Bivariate Assessments of Real Exchange Rates Using PPP Data*, Policy Development and Review Department, IMF: [Link](#)

5. See, e.g. Hauner, David., Lee, Jaewoo., and Takizawa, Hajime. (May 2010). IMF Working Paper, *In Which Exchange Rate Model do Forecasters Trust?*, Research Department, IMF: [Link](#)

Advice to foreign government agencies

6. E.g. MacDonald's presentation with the Head of Research and Analyses Unit at National Bank of Poland in 2008 ([Link](#)), which they later published as a working paper for CESifo Group Munich: Beza-Bojanowska, J; MacDonald, R. (2009): The behavioural zloty/euro equilibrium exchange rate, CESifo working paper, No. 2568: [Link](#)

7. Confirmation from Principal Economist at the European Central Bank on the impact of MacDonald's body of research on the ECB's work and publications. [Available from HEI]

8. Director of the Economic Department at the Ministry of Development Planning and Statistics Qatar, (formerly General Secretariat for Development Planning), can attest to the impact of MacDonald's report on the development of the Qatar National Development Strategy 2011-16. [Contact Details Provided]