

Institution: Brunel University
Unit of Assessment: 18 Economics and Econometrics
<p>Overview</p> <p>Building on established expertise in econometrics, finance, corporate governance, banking and development, the Economics department's research is characterised by a range of empirical and theoretical methodologies, but with a strong applied bias in both strands. Brunel has had an economics department since its inception, and it remains one of the larger departments in the University. The Department has a diverse staff and student body, commensurate with the demographics of its location in west London and its global ambitions. It is committed to building a sustainable community which produces cutting edge research of benefit to an increasingly globalised economic and financial world. This commitment is reflected within and operationalized through our four internationally renowned University Research Centres (URCs) that coordinate and foster research activities, informing parallel teaching programmes. These URC's share an orientation towards nationally and internationally collaborative research that addresses key contemporary economics and finance issues. All academic staff and doctoral students have primary membership of one centre.</p> <p>The Department has a senior staff Research Coordination Committee (RCC) led by the head of department (Barrell) that has a clear remit to foster and enhance research quality, and this in turn works with the School of Social Sciences Research Committee to improve research outputs. Each Research Centre chair reports to the departmental committee and it is supported by a Doctoral Committee (chaired by Bennett) linking to the School Doctoral Committee, which oversees the management of the Department's expanding and successful doctoral programme. The Research Coordination Committee is responsible for the formulation and implementation of research strategy, the provision and distribution of resources, ethical conduct, furthering impact and ensuring that there are adequate research/teaching links. The committee meets regularly in term time. Administrative support is provided by the School of Social Sciences as well as by the central University bodies.</p>
<p>b. Research strategy</p> <p>The Department entered the post RAE 2008 period with a strategic drive to secure and consolidate its position as an internationally recognised, research intensive body of scholars producing high quality outputs and policy relevant research. We have sought to improve on our good 2008 performance through our on-going strategic aim of enhancing the quality of our research and creating a thriving research culture. During the assessment period members of staff have published in journals as diverse as the Review of Economic and Statistics, the Economic Journal, the Journal of Time Series Analysis, Risk Analysis, Journal of Econometrics, Management Science and Games and Economic Behavior. The agenda of driving up research quality underpins our research structure and drives our staffing and research funding strategies.</p> <p>In the 2008 RAE, the Department noted that it was working towards the establishment of a fourth research group, in corporate governance, and this is now functioning very successfully. In addition it expected to contribute to the convergence of the policy debates on privatisation and public-private partnerships in developing countries. This was in part achieved (Bennett and Iossa, Oxford Economic Papers 2010) before staff changes affected the agenda. It also aimed to maintain its position as a centre for nonlinear modelling, applying techniques in financial econometrics to emerging challenges such as the consequences of global excess liquidity. This has been achieved, with papers in the Journal of Empirical Finance, Journal of Econometrics, Journal of Applied Econometrics, Econometric Theory, Review of International Economics and elsewhere by Caporale, Karanasos and others. In the RAE the Department was clear that it also planned to use its expertise to address new issues in the regulation of financial institutions, and this has been a major area in which we have re-focussed our work in response to events. The appointment of Barrell, Karim and Ventouri has allowed the Department to publish in a wide range of journals on these issues, including the Journal of Financial Stability and the Journal of Banking and Finance. A new set of objectives, expanding on previous themes, and discussed below, were constructed in 2010 in the light of the financial crisis.</p> <p>1. To increase research income from external sources</p>

The University and the Department has been enhancing its grant application process by increasing the level of support for grant writing, with an ESRC (and other large grant) committee now overseeing all large applications, with funds provided for designing large applications. The Department has achieved measurable success in raising research income as compared to the 2008 RAE period, when grant income per head was £7,628. Since 2010 a number of large grants have been received, including almost £500,000 from the ESRC on behavioural finance and on financial regulation, and euros 200,000 from the European Commission. On the basis of awards, our income per head has been almost £30,000 over the REF period, noticeably higher than in the last assessment period. This has developed research capacity and sustainability, a key strategic aim, through the direct involvement of mid- and early career researchers, through improving the support given to academics and through increased training, advice and mentoring.

2. To raise research success through high quality published research outputs

This direction and approach are also oriented towards enhancing the quality of published research outputs. Since 2008, the current department staff have published more than 280 Scopus listed papers in peer review journals, as well as numerous book chapters and books. Nearly two thirds of these published articles are in journals considered to be world leading or of international excellence in terms of originality, significance and rigour. This achievement has been supported by a generous departmental conference budget (normally £16,000 annually) that enables national and international collaborations through the sharing of ideas within the wider academic community. It is also supported by university initiatives, detailed below, that allow dedicated research time.

3. To strengthen research centres and to realign or establish centres where appropriate

Reflecting our approach of enhancing quality and supporting 'clusters of excellence' through inclusive, collaborative and synergistic research activities, URC's have been developed and realigned since 2008 around priority areas that support four centres. These address key issues of development, macroeconomics, empirical finance and corporate governance. They enhance research output at Brunel by bringing high quality international scholars (in 2013 alone Farmer (UCLA), Baillie (Michigan), Terasvita (Aarhus), Robinson (LSE), van Dijk (Erasmus), Sarno (CASS) to discuss their work with Brunel researchers. This exposure enhances quality and ensures we instigate international collaborations. For instance, a 2011 EU funded conference on the electricity market led to research published in Energy Economics with Dr Maria Herrerias. The Department is organised into overlapping groups to work on these major strands, and currently has three established and one new research Centre around which much of our activity is focussed. Members of staff join one or two Centres in order to foster cooperation and enhance their research activities.

The Centre for Economic Development and Institutions (CEDI chair Bennett, 17 members) has a research focus on the impact of institutions on economic performance of a region or a country through incorporating studies in development economics, comparative economics and the study of transition economies. Its recent research output includes articles in journals such as the Review of Economics and Statistics (Grant), Management Science (Chioveneau), Oxford Economic Papers (Bennett) and the Economic Journal (Rablen). Rablen was awarded an ESRC Future Leaders grant and Karim an ESRC post-doctoral fellowship, following on from a Brunel PhD. The Centre has held annual high-profile international conferences for 8 years.

The Brunel Macro Economic Research Centre (BMRC chair Karanasos, 16 members) focuses on the study of monetary policy, unemployment and financial development and growth. Karanasos was awarded a large grant from EC PF7 for a research project on growth in 2012 and there was a £55,000 ESRC network grant on Brazil from 2010 to 2012. During the assessment period members of the Centre have published in Econometric Theory (Karanasos), IMF Staff Paper (Campos), Economics Letters (three papers), Journal of Banking and Finance (Costantini), Oxford Bulletin of Economics and Statistics (Martinez), Economic Inquiry (2 papers), Journal of Economic Dynamics and Control (Diotokopolous) and the Journal of Financial Stability (3 papers). The annual conference has been running for 8 years and is attended by macroeconomic researchers and policy makers from the UK, North America and Europe. In 2013 the centre organised two international conferences at Brunel.

The Centre for Empirical Finance (CEF chair Caporale, 10 members) produces innovative research that makes a contribution to improving our understanding of international monetary and

financial systems. Members of the centre publish regularly in leading international journals in the area such as the Journal of International Money and Finance, the Journal of Banking and Finance, the Journal of Empirical Finance, the Review of International Economics, Economics Letters, the Journal of Econometrics, the Journal of Time Series Analysis, and Econometric Theory. Spagnolo was awarded an EU grant for the study of financial market efficiency and Caporale an EU Marie Curie grant for a study on European youth unemployment. The annual conference has been running for 5 years and attracts an international audience.

As part of Department's strategy, **the Centre for Accounting, Finance and Corporate Governance (AFCG chair Liu, 7 members)** has recently been established with the aim of enhancing our research and research networking in relation to the study of accounting, corporate finance and corporate governance. The current focus of the Centre is on corporate finance and governance, using an interdisciplinary approach that integrates accounting, finance and economics. The Centre is currently developing its research on quantitative finance jointly with Christian Beulen from Arity Quantitative Finance, along with other practitioners who support our research and visit the Department.

4. To build a sustainable and high quality doctoral programme.

Our successful and vibrant doctoral programme has doubled in size since 2008 in response to our expanding research reputation, and we have increased our focus on banking and finance related PhD students. Training is embedded within the School of Social Sciences multidisciplinary doctoral Masterclass programme and by the annual Staff/PhD student research conference, where staff and students present recent work. With over 50 students in place, the Department regards its PhD programme as a key element of its research environment, with completion rates increasing over the REF period from 3 in 2008-9 to 9 in 2012-13. Joint papers have been published by supervisors and students in, for instance, the *Journal of Banking and Finance*, *Economic Modelling*, *Economic Letters* and papers have been presented at the RES.

5. To enhance the significance and impact of our research

The Department has sought to further the dissemination of our research and maximise the benefit to users through engagement with policymakers, practitioners and industry. This is supported by University initiatives, run on a competitive basis, such as Knowledge Transfer Leave. We disseminate research through websites, video podcasts as well as social and traditional media. In addition our Centre conferences include policy maker sessions, with speakers from the IMF, the OECD, and the European Commission on Fiscal policy at the BMRC conference in 2013. These links enhance the reach of our research. The department benefits from the University Policy in providing financial support for the submission of papers journals, including to those with gold open access. We have built up a research-progress monitoring system by regularly assessing research outputs made by staff and requiring research be reported electronically to the University.

Evaluation of the current position

There has been a significant improvement in staff quality since the 2008 RAE, although the submission rate is similar. The development of strength in the study of financial markets and empirical finance has been a major thrust of our strategy in the last three years, and we are now in an excellent condition to enhance our research capacity further. Barrell (banking) and Skinner (finance) have recently been appointed as professors, and have transformed our landscape. A significant degree of research capacity in financial markets with a particular focus on banking and microstructure of financial studies has emerged, which has provided us with new areas for enhancing our research and impact. Over 50% of recent papers produced by staff have been in the area of banking and financial regulation. A large body of researchers has been collected together in these fields, and 12 Brunel staff, led by Barrell and Bennett, submitted a second stage Centre bid to the ESRC in September 2013. The development of this large research proposal has enhanced our capacity to make further applications in the area.

The BMRC has also formed a major centre for research in financial econometrics and macro-econometrics, and a significant amount of our research is directed through this group. Our applied theory work organised through CEDI is also strengthening significantly with high quality papers published on Behavioural economics in *Economic Journal* and on information in *BE Journal of*

Economic Analysis and Policy. We see our empirical work on finance and accounting issues organised through CEF as a strong part of our current position, and will develop it further.

Main Objectives (Next Five Years):

Our strategic aim over the next 5 years is to build on the capacity, research expertise and collaborative partnership developed during the REF period to engage and lead in research areas identified as priority by UK and international policy programmes and research councils. Our Research Centres will be aligned to exploit established and developing expertise in the above priority areas. Under the direction of the Head of Department the Research Coordination Committee will direct research agendas at Research Centre level, underpinned by internal and external programmes of support. The Research Centre heads will monitor the progress of members, and it will be discussed at Research Coordination Committee. Individuals who are falling behind a target of one 3 or 4* paper each year will discuss their plans to rectify their positions with Research Centre heads and the HoD. Researchers will be set fundraising targets, with incentives such as research budgets increasingly dependent on success.

1. Over the next five years we will build up a centre of national and international excellence in Banking and Finance with at least 14 members led by Barrell with Karim, and Ventouri, Some of its staff will take a lead in the study of the impact of banking on growth, whilst others will look at the determinants of financial crises, and they will combine to look at optimal financial regulation. The centre will also look at the role of competition and regulation in banking, and at the impact of managerial incentives in bank performance.

2. We will continue our enhancement of research on institutional economics with a CEDI based initiative to expand behavioural research, led by Rablen, Chioveneau and Bennett. The Department has ESRC funding for a Future Leader in Behavioural Economics and Finance, and it is our intention that Rablen and Vanderos extend this work into the health area.

3. We will further enhance our established strength in growth research, with CEDI and BMRC based staff Diotokoplous, Ghosh and Fidrmuc taking a more integrated approach to explore growth. Slow growth is related to the international environment and institutional systems which can be addressed by macro economists, institutional economists and department specialists in trade and foreign direct investment and governance.

4. We will extend our Industrial Organisation (IO) work into studies of the pharmaceuticals industry, with Guy Liu working with new appointments, Vanderos and Siming Liu, both of who have published on health economics. These appointments were made to enable us to collaborate with the Health Economics Research Group at Brunel, by recruiting joint PhD students, applying for ESRC funds, recruiting new staff, and increasing international exchanges in the area.

5. We will play a major role in integrating accounting research into micro and financial economics, with Skinner taking the lead, supported by Chen and Hassan. Research in the area includes micro-econometrics, reflecting the changing nature of accountancy research as well as economics. Convergence is inevitable in the next decade as research methods from economics and finance will be applied to study the value of information and the economic logic of accounting.

We have recently introduced a new MSc in Banking and Finance, which will help build up our strength in the area, including attracting new PhD students working on banking. We have submitted a second stage large ESRC grant proposal for £3.6 million on banking regulation, and this will be followed by other grant applications in the area. The Department will use the successful Knowledge Transfer scheme to industrial sponsors in support of our strategic research on banking, financial markets and growth.

The Department will sustain our strategic direction of continuing improvements in the quality of our research outputs with a focus on producing outputs that are deemed to be world class or of international excellence. We will increase research income by identifying the strategic priorities of relevant funding bodies, and by building strong relationships with potential collaborators. We will build on staff development, in the form of a focussed grant writing programme led by staff from the Research Development Office in collaboration with experienced Social Science researchers from throughout the University. We will develop a high level of public visibility for our research through dissemination, public engagement activities, and active user engagement and by making our

research available freely to the widest possible audience using the University's very generous gold open access funds.

c. People, including:

i. Staffing strategy and staff development

Of our 31 staff, 30 are on full time permanent contracts. There is one Research Fellow in post funded by an ESRC Future Leaders Grant. Of the 15 promoted staff (Professor, Reader Senior Lecturer) 2 are female, whilst 10 of the 16 lecturers are male. Five staff are on probation, and three are ECRs. Two former professors remain active in the Department with one submitted to the REF on a 0.2 basis (Davis). There are two staff over 60 (Barrell and Bennett) and they might be expected to retire during the next assessment period. The remaining 6 professors are in their mid 50s or earlier, and they will continue to manage research throughout the next assessment period. Two (Ghosh, Liu) were internal promotions in the assessment period. Our demographic profile is sustainable as 3/5 of our research active members are currently below the age of 40. The Department has increased in size since 2008, from 29 to 31, with 15 people in post now who were not there in 2008, 5 of whom are female, improving the gender balance. Two of these new appointees were at the professor level, whilst the rest were appointed as lecturers. Of these, three have subsequently been promoted to senior lecturers (Costantini, Rablen, Chioveneau). Another senior lecturer (Fidrmuc) has attended the University's Future Leaders training programme. Turnover is currently very low, with four resignations and four appointments in the last 24 months. The increased length of job tenure by established staff, along with excellent junior staff, ensures continuing improvements in the Department's research profile.

Staffing strategy is developed and managed by the Head of Department (Barrell) with the Head of School and is oriented towards enhancing research quality. This is reflected in recent appointments, rewards structures and probationary/promotions processes. The Department has sought to appoint top international scholars who can develop key areas of research and provide effective leadership to our ECRs and junior staff. The appointment of an experienced research manager (Barrell) in 2011 has improved the Department's research focus, as was intended, and has contributed to the increase in grant successes. Another professor with an established record (Skinner) was appointed in 2012 to take on a leadership role in research on finance and on accounting. All appointees at lecturer level are expected to hold a PhD and to have at least one publication that is of international excellence in terms of originality, significance and rigour.

University and Department processes have been revised since 2010 to integrate high quality research outputs and intellectual capability more fully into promotion and appraisal criteria. Career development support takes place at University and Department levels that work together to promote world-leading research and support a vibrant academic environment. Led by the Pro Vice Chancellor for Research and managed through the University's Research and Knowledge Transfer Committee, University Career Development Initiatives are driven by the strategic goal of developing a sustainable world-class research community through appropriate support for staff and through incentives for high quality research.

University Staff Development requirements include obligatory training in equality and diversity for all staff and this is reflected in our Departmental strategies, which include, for example, monitoring of teaching workloads for equity. All new staff are required to attend equality and diversity training and to formally update their knowledge annually. The University was given the Athena SWAN bronze award in 2012 for promoting the equal opportunity for women in science-related subjects and there is additional support for researchers returning from maternity leave. The University has recruited an Equality and Diversity Champion to provide valuable insight and leadership. Equality and Diversity is supported through various mechanisms including workload adjustment for staff with disabilities, flexible work arrangements for staff with childcare responsibilities and central support for maternity leave. The Department has noted the paucity of female senior staff, and has added to University initiatives and implemented an active mentoring and support process that will enhance the possibility of promotion amongst this group.

Most work in the Department entails analysis of existing datasets that do not contain information from which individuals can be identified. Hence there are few ethics related issues in our work. Some research projects, however, do require additional information, or information that can be

Environment template (REF5)

attributed to individuals. Where this is the case the Department, through its ethics coordinator, Fidrmuc, ensures that research complies with Brunel University Code of Research Ethics. This requires that ethical approval will be sought for the project prior to its commencement. The Department ensure research integrity through the Research Committee's management of joint authorship policy, where contributions have to be agreed. In rare multiple (above 6) author cases University guidelines are followed.

The University has several schemes for enhancing research, with the successful BRIEF (*Brunel Research Initiative and Enterprise Fund*) scheme being open to academics below senior lecturer level. Up to £15,000 pump priming is awarded on a competitive basis for ECRs to start research and to seek external funding to support on-going projects. *Knowledge Transfer Leave*, open on a competitive basis to academic staff outside probation, offers a period between one term and one academic year to concentrate on a KT programme of applied research. A criteria-based *promotion process* that rewards research excellence and facilitates *succession planning*, overseen by Senate and subject to an annual Equality Impact Assessment to drive equity improvements. As a result of our strategy to encourage staff to look for outside links, Prof Campos was awarded DFID Research Fellowship to study South American Economic Growth for 3 years.

The University gives funded *Research Leave*, open on a competitive basis to all academic staff outside probation, offering a period of teaching/administrative relief for up to one year (and supported by up to £5,000). Since 2009, 5 members of staff (including Ghosh, Fidrmuc and Shortland) have been awarded leave to focus on a research related activity or programme. Diotokoplos visited Brown University, US, and enhanced their work on growth and macro-economics. There is active support for URCs through central marketing and promotion, websites, research publications and access to internal funds. A *Research Development fund* offers up to £5,000 for staff to undertake a pilot project towards a larger (e.g. ESRC) grant application. Since 2009, Rablen, Shortland, and Fidrmuc have received awards. Two have already led to successful external grants (Low Pay Commission and ESRC) and high quality outputs. We have a *programme of training and support* for ECRs in preparing ESRC and other large bids. Rablen and Costantini both took part and subsequently succeeding in winning large grant applications.

New academics have a reduced teaching load and undertake a period of probation (normally 3 years) where targets are clearly defined and where progress is carefully monitored by both the Head of Department and the Head of School. Readers/Professors agree their targets for the coming year with the Head of Department. More junior staff discuss progress and plans with their mentors and with the Head of Department. Early career researchers are supported with a 15% reduction in teaching load and the opportunity to attend workshops and write a dissertation in order to receive a certificate on teaching and learning in higher education (PDAP). The combination of URC conferences and the internal speaker programme draws in expert external speakers and seeks to encourage internal research communication across the Department.

ii. Research students

The Department has become a highly attractive place for doctoral studies, dealing with more than 100 applications a year, with 22 staff supervising some 55 international students, and 31 students completing in 2008-2012. Over this period more than 85% of the students completing within 4 years of starting, with only 4 fails or withdraws. Our aim is to speed up completions to hit a target of 95% submission within four years. The success of our PhD programme is built on strategies for enhancing recruitment, supervisor activity and overall support. The high quality of doctoral training received by students means that they are very successful in the job market, with students offered jobs at the European Central Bank, UK universities including Brunel, Glasgow University, Hull University, SOAS etc., and other International Universities such as Kuwait University, China Southern University of Finance and Economics.

The recruitment strategy includes our request for a quick response to applications within 3-4 weeks of receipt, the introduction of three induction events per year (new students October and January; returning students in October), and recognition of staff time involved in PhD supervision by providing supervisors with significant teaching credits for taking each doctoral student.

The Department seeks to embed research students within a vibrant and supportive environment that provides appropriate training opportunities. We act in compliance with institutional benchmarks

Environment template (REF5)

and guidelines: the Researcher Development Framework and Researcher Development Statement; the ESRC Post Graduate Training and Development Guidelines and the Concordat to support the career development of researchers – as well as Brunel based quality assurances. Activities and awards targeting PG students include: the Isambard Scholarship scheme that supports excellent PG candidates and the Vice- Chancellor Travel Prizes to support conference attendance (since 2008, 3 economics and finance PhD students have received VC travel prizes of £500 each). Students are also provided with information to look for summer research internship in international organizations. Two of our recent successes have been summer internships at the IMF and the UN. Students are encouraged to present at conferences and normally £10,000 annually is set aside for this purpose. Supervisors are encouraged to publish with their doctoral students, and they have done so, including in the Journal of Banking and Finance, (Karanasos, Liu, Moore, Campos) International Review of Financial Analysis (Caporale, Hunter), Journal of Corporate Finance (Moore), and Asian Economic Papers (Liu) and Economic Bulletin (Liu, twice) Our PhD students therefore contribute to a vibrant research environment in the Department.

All graduate students use the facilities within the School of Social Sciences and the University Graduate School: Common Room, study room, networked computers, leading to an inclusive culture that is capable of supporting high quality, collaborative work. We also provide students with a number of supporting mechanisms including an annual review process by an independent member of staff and the first supervisor, an annual research-progress presentation by students, with confirmation after 12 to 14 months, various training courses organised by the Department (Barrell, Bennett, Grant and Costantini have contributed) and School interdisciplinary masterclasses (Guy Liu, Morro and Grant have contributed) in order to equip them with generic knowledge and skills for conducting productive and quantitative research, and a weekly research seminar given by external researchers. The School has two support staff dedicated to help the students administratively, and the Department provides them with 40% of their workload.

The School of Social Sciences holds an Annual Staff/PhD Students' Research Day. The Graduate School supports all Brunel Postgraduates and Early Career Researchers through the provision of a comprehensive skills development programme, workshops and networking events, study and social facilities. At the University level, a multidisciplinary Research Student Poster Conference is held annually with over 160 students contributing posters to the event. The Graduate School also offers *on-line Research Methods* courses and a highly successful *Researcher Development Programme*, mapped onto the national Researcher Development Framework covering Research Ethics and Research Integrity; Preparing for your Viva; NVivo and SPSS software training. There are also Library sessions for PhD students explaining how to use citation indices and on exploiting e-journals.

d. Income, infrastructure and facilities*Grant Income Generation Strategy*

The Department recognises that research quality both depends on and reflects our ability to attract external funding. As part of our wider goal of driving up the quality of our outputs, our strategy for generating grant income is based on a well-defined funding support structure. This structure is designed to maximize the number, and success rate, of institutional grant applications and to encourage fund raising from industry and private sources. The University has had excellent support for grant applications for some time, with a robust policy on mentoring and monitoring applications for funding. This process was strengthened in 2011 with the introduction of an ESRC Applications Panel which evaluates all social science applications to this council. The University and department initiatives have played a strong part in significantly raising our success rate. This also reflects the improvement in the quality of our research output over the preceding period. The University provides training in grant writing that involves a mock exercise as an ESRC panel member reviewing real grant applications; both successful and unsuccessful applications are used for the panel members to discuss their decisions and comments. Subsequent workshops involved members of staff presenting their applications to a small committee for review and comments, plus a workshop on writing style. These training sessions are run in collaboration with Research Support and Development Office. The Departmental Research Committee provides detailed advice and comments on all draft grant applications written by members. There is a systematic peer review and approval process of all draft applications before these are submitted to funding

organizations. We require every member of staff to develop and submit funding applications as one of their research targets for performance evaluation and promotion criteria. We will continue our improvement of our monitoring and mentoring, and it is expected that the improvement in the success rate in ESRC applications will continue.

Research Incomes

Our grant application management system has enabled us significantly to improve the quality of our grant applications, raising our success rate in the last 3 years. For instance, an ESRC Future Leaders grant for £230,000 has been obtained, along with a £100,000 postdoctoral fellowship from ESRC, as well as a number of smaller grants and industrial funding. Major grants over the period include 4 ESRC grants, 2 EU grants, an industrial grant for knowledge transfer and a government grants from DFID, and a grant from Austrian Science Foundation. Between 2008 and 2012 our staff made 55 Principal Investigator grant applications (based in Brunel) and 20 were successful. The applications were for £2.85 million and £934,270 was raised. Of this some £202,000 was from UK research councils where applications had a success rate of 5 out of 22, which is around the national average, and higher than in the previous assessment period. Links between the awards of funding for staff and their subsequent research output at a high standard of quality is evident from the DFID funding that led to an article in the Journal of Banking and Finance, and one industrial grant for knowledge transfer that led to a paper published in Journal of Econometrics.

Infrastructure and Facilities

a. Infrastructure in support of funding applications:

The University and the School has established a system to circulate funding information regularly and promptly to all academics and conducts an annual performance review of funding applications at a departmental level. It provides advisory support in facilitating research contract negotiation and costing along with research account management for use of awarded funds by the University. Funding application success depends intimately on the quality of prior publications, and the University and the Department provide support to increase output quality. The University provides members of staff with Open Access Publishing Funds in support of submission to open access journals. There is also an uncapped fund for journal submission fees, which currently run at £3,000 per annum.

b Resources and computing facilities in support of research:

Our research environment has been enhanced by University investments of £350 million on the redevelopment and expansion of the campus. A revision of annual performance management and appraisal processes took place in 2010, and there is now a greater emphasis on research, with publications one of the key criteria for promotion. The University's Research Development Fund also supports networking and the writing of major grant applications. Research Centres benefit from marketing and promotion via the Brunel website, and the School has a dedicated web-manager as well as two dedicated IT technicians. Graduate School programmes including Core Skills and on-line Research Training which are available to all staff. The RSDO Business Development Service offers support in developing collaborations with industry The Department is equipped with excellent computing facilities in support of research for both staff and doctoral students. We have a site licence for Eviews on campus, a University Licence for SPSS, a departmental licence for MicroFit 5, a lab licence and multiple single user licences for STATA SE and Intercooled STATA, a School-wide licence for SAS, and a research licence for Matlab with the statistics module. This software enables us to process datasets with a state of the art modelling techniques, which lead to the production of high quality papers. In addition to the licences above, we have also equipped our members with individual licences for RATS plus the CATS module for Johansen cointegration of I(2) and small sample corrections, Limdep with Nlogit and Oxmetrics Professional with STAMP, PCGIVE, G@RCH and the Ox programming language.

Staff and students have good access to professional accounting, economic and financial data at both corporate level and national level. The Department has licences with the Library for DataStream, Bloomberg, Company databases Fame and Osiris, Thomson 1 (previously termed banker), Bankscope, Thomson Reuters Eikon, World Bank and IMF Country Statistics. Our Library also provides members with access to more than 9000 books and 128 journals and 2106 e-

journals related to the research interests of staff.

e. Collaboration or contribution to the discipline or research base

Furthering collaborative partnerships is a cornerstone of our goal of increasing research quality – informing our research and international strategy. The Department has strengthened existing partnerships and built new collaborations, taking advantage of our culturally diverse staff, many of whom have overseas links and cross-national research interests and expertise. Through our collaborative partnerships and the synergies created within our URCs we are shaping Economics and Finance in diverse ways. Overall much of our research has been carried out in collaboration with external scholars from more than 50 national and international institutions including University of Oxford, LSE, World Bank, European Central Bank, HMRC, Department for International Development at UK, Central Bank of Cyprus, the Chinese government of Electricity Regulatory Commission, and Universities in Spain, Italy, Portugal, Germany, France, Netherlands, Belgium, Hungary, Greece, Japan, China, Egypt, New Zealand, Canada and the US. In addition Rablen and Karim are members of the ESRC Peer Review College; Barrell, Guy Liu, Bennett, Canepa, Skinner, Fabio Spagnolo, Caporale, Nicola Spagnolo and Karanasos have refereed for the ESRC; Barrell and Costantini have reviewed for the US NSF, and Barrell and Caporale have reviewed for the Leverhulme Foundation. Members of staff have refereed for other grant giving bodies in Canada, the Czech Republic, Italy and Australia.

International recognition of the above work is evidenced in extensive external refereeing for more than 300 national and international journals, playing editorial roles for journals, editing special issues of journal, and taking visiting positions in national and international institutions. Our staff are involved in an editorial role for journals including *Journal of international Money and Finance* (Caporale), *Economic Modelling* (Barrell) *Journal of Common Market Studies* (Barrell) *Journal of Chinese Economic and Business Studies* (Liu), *International Review of Financial Analysis*, (Skinner), *Quantitative and Qualitative Analysis in Social Sciences (QASS)*, (Karanasos), *World Economy* –Kiel (Fidrmuc), *Journal of Financial Innovation* (Skinner) and guest editing special issues in *Journal of Intelligent Systems in Accounting, Finance and Management* (Caporale), *International Review of Financial Analysis* (Skinner), *Review of International Economics* (Caporale). Our staff have taken on leadership in professional associations, including vice president for Multinational Finance Society, 2010-13 (Skinner), and president of AIECE (Association of European Conjuncture Institutes 2010-12) (Barrell). Members have taken visiting positions in more than 15 international research institutions including IZA in Bonn, University of Auckland, Katholieke University Leuven, Bank of Finland, Hiotsubashi University, Fudan University, Leiden University, DIW Berlin, and the Department for International Development of UK, National University of Singapore, and LSE.

The Department will continuously promote research output dissemination by sustaining our annual conferences, with further planning to organize high profile international events and conferences over next 4 or 5 years, particularly, in particular related to banking and financial market studies. This strategy is built on the basis of our previous success in organizing events such as our annual conferences by research centres, and non-regular events which are funding-based or project-topic-focused workshops/conferences/seminars. Conferences and workshops organised by our staff over the assessment period have been attended by more than 1000 people. We encourage staff to promote the dissemination of research outputs via workshops, conferences and seminars. Since 2009, we have hosted 16 conferences and workshops at Brunel, as well as a number elsewhere, and speakers in 2013 alone included Farmer (UCLA), Ellison (Oxford), Pearlman (City), Gourieroux (Toulouse), Taylor (Nottingham) Yates and Mumtaz (Bank of England), (int Velt, EU) and Lansing (FRB San Francisco). There was also a workshop on Executive Remuneration with Thompson (Nottingham), Bryson (NIESR and CEP) and Chen (Surrey). We see these conferences as central to our strategy of increasing our academic reach and improving the quality and quantity of our own outputs