Africa 170
   South 162, 166
Aghion, P. 12
Aitken, B.J. 14
aircraft 73–4
AlAzzawi, S. 16, 17
Ali-Yrkkö, J. 10
Almeida, P. 11
Ambos, B. 16
Anderson, F. 12
Añón Higón, D. 17
Archibugi, D. 1, 6, 159, 184, 185
Arvanitis, S. 10, 16, 68
Asakawa, K. 81, 159, 178
Asia/Asian countries 36, 37, 166, 170, 193
   non-OECD 194
   South East 87, 88, 190
asset-seeking
   motive – access to knowledge 11
   strategies 11
Athukorala, P.-C. 83, 113
Audretsch, D. 6
Australia 87, 161, 170
Austria 27, 39, 41, 44, 46, 64, 66, 76, 85, 96, 99, 102, 110, 117, 145, 161, 184
automotive companies
   Continental 129
   Dacia 123
   Daewoo 120, 121
   Daimler 125
   Ford 121, 125, 130
   Hyundai 121
   Mercedes 121
   Oltcit 123
   PSA Peugeot Citroën 121
   Renault 120, 125, 129
   Škoda 69, 120, 123, 127, 139
   Volkswagen 120, 125, 127
automotive industry (and/in) 119–30
   common motives and drivers of R&D internationalisation in the EU-12 122–4
   the Czech Republic 126–7
   Hungary 127–9
   Israel 136
   R&D internationalisation patterns in the EU-12 120–22
   recent motives and drivers 124–6
   Romania 129–30
   Slovak Republic 130
   the United Kingdom 137–8
Bailey, D. 14
the Balkans 128
Bandick, R. 15
Barba Navaretti, G. 15, 71, 154
Barber, M.J. 93, 99
Barry, F. 15
Baskaran, A. 81
Behrman, J.N. 5
Beise, M. 165
Belderbos, R. 6, 7, 56
Belgium 39, 41, 44, 45, 58, 61, 64, 66, 69, 76, 85, 96, 99, 145, 165 see also studies
   and Janssen Pharmaceutica 53, 69
   pharmaceutical and chemical industries in 54, 55, 57
   R&D internationalisation in 53–8
Bellak, C. 185
Bellandi, M. 14
BERD see inward BERD and outward BERD
Berger, M. 37
Bertrand, O. 15
Biegelbauer, P. 128
Birkinshaw, J.M. 6, 12, 14, 186
Blomström, M. 12
Blonigen, B.A. 6, 14
Bosch Group 125, 169–72, 175–6 see also German multinationals in India
198

**The Internationalisation of Business R&D**

- and the Tata Nano car 176
- Braconier, H. 17
- Bradsher, K. 161
- Brash, D.T. 5
- Brazil 29, 31, 86, 163, 166
- Breschi, S. 6, 7, 11, 93
- Breusch-Pagan-Test 114, 147, 154
- Breznitz, D. 136
- Bruche, G. 178
- Bulgaria 32, 41, 45, 46, 145
- Buse, S. 178
- Čadil, V. 126–7
- Canada 39, 42, 44, 77, 87, 96, 102, 138, 183, 184
- Cantner, U. 13
- Cantwell, J. 5, 7, 11, 81, 137
- Carlsson, B. 159
- Cassiman, B. 14, 15
- Castellacci, F. 8
- Castellani, D. 14, 153
- Caves, R. 9
- Cerrato, D. 10
- Cheshire, H.W. 11
- China (and) 2, 29, 31, 41, 83, 86, 87, 88, 102, 161, 163, 166, 168, 170, 172, 183, 184, 193, 194, 195
- case study: data on R&D internationalisation in China 33–36
- Chinese-foreign Joint Venture (JV) 36
- inward BERD in 49
- Ministry of Science and Technology (MOST) 34
- National Bureau of Statistics (NBS) 34, 36
- round-tripping 36
- Cincera, M. 7, 184
- Coe, D.T. 13
- Cohen, W.M. 9, 10, 13
- Colechia, A. 29, 30, 153
- Comanor, W.S. 75, 76
- Costa, I. 12
- Cowan, R. 8, 11
- Cozza, C. 30
- CREST Working Group 2
- Creamer, D.B. 5
- Crisculu, C. 17
- Crisculu, P. 11, 17, 190
- Cusmano, L. 93
- Czech Republic 41, 46, 56, 64, 66, 69, 86, 96, 99, 102, 134, 138–9, 145, 166, 184
- and Council for Mutual Economic Assistance (CMEA) division of labour 123
- motor vehicle industry in 59, 62, 119–25, 126–27, 139
- R&D internationalisation in 58–62
- Dachs, B. 2, 3, 4, 7, 16, 56, 159
- D’Agostino, L.M. 17, 153, 154
- Damijan, J.P. 14
- Danzon, P.M. 75, 76
- De Backer, K. 2, 7, 137
- decentralisation 11–12
- Defiance Technology Limited (and) 160–64, 166–8
- drivers of overseas R&D 167
- geographical markets for 161, 166
- public policies 167
- R&D locations 162
- REpower Systems 161
- Denmark 32, 46, 85, 96, 102, 145, 162, 163, 165
- Di Minin, A. 81
- DiMasi, J.A. 75
- Dogson, M. 10
- Doval, P. 178
- Driffield, N.L. 14
- drivers of R&D internationalisation in the automotive industry and knowledge-intensive business services see automotive industry and knowledge-intensive business services
- Dubiel, A.T. 178
- Dunning, J. 1, 5, 9, 11, 15, 159
- Eastern Europe 166
- Eden, L. 7
- Ekholm, K. 6
- Erdős, P. 93
- Erdős-Rényi graph 93
- Ernst, D. 6
- Ernst, H. 178
- Estonia (and) 46, 78, 119, 134–6, 145, 184
- Estonian Research and Development and Innovation strategy 135
- Skype 134–6
Index

WEF Global Competitive Report (2011) 135
EU-12 countries 46, 85–6, 99, 114–16, 119, 126, 134, 148, 151, 153
EU-15 countries 114–16, 145, 147, 148, 149, 151, 153
EU-25 countries 131
EU-27 countries 37, 40, 45, 84, 135, 190, 192, 194
and non-EU-27 countries 45
European Framework Programmes 99
European Patent Office 90
European Single Market 139
European Union (EU) 40, 41, 42, 44, 49, 50, 84–5, 89, 183, 194
see also legislation (EU)
countries 145
R&D expenditure of US firms in 81
and small and medium sized countries with large domestic MNCs 77
EUROSTAT 2, 27, 31, 32, 37
Foreign Affiliate Statistics (FATS) 29
Falzoni, A.M. 154
Faust, K. 93, 95
Feinberg, S.E. 16
Feldman, M. 6
Figini, P. 14
Filippetti, A. 185
Filippov, S. 12
Finland 27, 32, 64, 77, 85, 96, 99, 145, 191
Fischer, W.A. 5
Florida, R. 11
Food and Drug Administration (FDA) 75
Fors, G. 16, 17
Forsgren, M. 15
France 27, 39, 41, 45, 47, 57, 66, 69, 84, 85, 88, 93, 96, 99, 102, 125, 138, 145, 161, 165
and Renault in Japan 101
Frost, T.S. 186
Gassmann, O. 11
German multinationals in India 169–78
Bosch Group 169–72, 175–6, 178
Engineering and Informational Technology Division of 172
and motives for R&D in India 175–6
see also India
Siemens AG 172–5, 177–8 see also subject entry
East 123
firms in India 4, 153 see also German multinationals in India
Indian multinationals in see Indian multinationals in Germany
R&D expenditure of French firm in 40
Gersbach, H. 10
global financial crisis (and) 4, 81, 85, 89 see also R&D internationalisation and the global financial crisis
Godin, B. 29
Google 136
Görg, H. 12, 13, 14
Grabowski, H.G. 75
Greece 85
Greenaway, D. 12, 13
Greenhalgh, C.A. 9
Griffith, R. 17
Guelpic, D. 7, 190
Gupta, A.K. 16
Hall, B.A. 1, 39, 42
Han, Z. 11
Hanzl, D. 3, 120, 123
Harris, R. 9, 17
Harrison, A.E. 14
Hatemi, F. 2, 7, 137
Hatzichronoglou, T. 5, 71
Hauknes, J. 132
Hausman test 114, 145, 147, 151, 154
Havránek, T. 12
Head, K. 9
Hedge, D. 6, 113, 119
Helpman, E. 9
Herfindahl Index 74
Herstatt, C. 159, 166, 175, 178
Hewlett-Packard 136
Hicks, D. 6, 113, 119
Hoekman, J. 93
Hollenstein, H. 10, 16, 68
Holtbrügge, D. 176
Hong Kong 34
Hood, N. 6, 12, 14

Bernhard Dachs, Robert Stehrer and Georg Zahradnik - 9781783470907
Downloaded from Elgar Online at 07/19/2019 10:37:57AM via free access
host country determinants of R&D internationalisation 105–18
analysis 112–16
and data on R&D expenditure of foreign-owned firms 106–9
internationalisation of production and R&D 105–9
relationship between R&D intensities of domestic and foreign-owned firms 109–12
Hu, Y. 93
Hungary (and) 32, 41, 42, 45, 46, 86, 119–25, 134, 145, 166, 184
Hungarian Vehicle Development Cluster (MAJAK) 128
Knorr-Bremse 128–9
multinational R&D centres in 127–9
North Hungarian Automotive Cluster (NOHAC) 128
Pannon Automotive Cluster (PANAC) 128
Iammarino, S. 1–2, 6, 137, 159
IBM 136
impacts of R&D internationalisation on domestic R&D activities (and of) 143–57
inward BERD on domestic patenting activities 149–53
inward BERD on domestic R&D expenditure 143–7
inward BERD on domestic R&D intensity 147–9
outward BERD on domestic R&D activities 153–5
India 29, 31, 86, 88, 138, 172, 183, 193, 194, 195 see also German multinationals in India
Indian multinationals in Germany (and) 160–69
Defiance Technology Limited (Defiance Tech/TechGmbH) 160–64, 166–8
see also subject entry
drivers of overseas R&D 167
implications for the home country 168–9
locational advantages of the EU 165–6
locations of R&D 162–5
main geographic markets 161
role of public policy 167–8
Suzlon Energy Limited 161–3, 165–8
see also subject entry
innovativeness and R&D 10
effects of global financial crisis on 186–90
of EU firms in the US 84–5
geographical distribution of inward BERD at sectoral level 76–8
impact on domestic patenting activities 149–53
impact on domestic R&D expenditure 143–7
impact on domestic R&D intensity 147–9
relative strength of inward BERD links between individual countries 99–101
Inzelt, Z. 128
Ireland 41, 45, 46, 78, 85, 145, 184
manufacturing sector of 106
Iršová, Z. 12
Israel 31, 32, 39, 44, 64,78, 119, 136, 139, 184
issues in collecting data 27–38
data on R&D internationalisation in China (case study) 33–6
definitions of R&D and innovation 27–9 see also OECD
and experiences from the data collection 31
methodology, data sources and challenges 29–31
Italy 33, 39, 41, 42, 62, 66, 85, 145, 161
Jaccard Index 91, 99–101
Jacob, K. 163
Jaffe, A.B. 6
Janosec, J. 126
Japan 32, 33, 34, 36, 39, 41, 49, 61, 66, 77, 88, 93, 96, 102, 106, 110, 117, 138, 166, 183, 184, 191, 192, 193, 194
Renault production in 101
Jensen, N.M. 6, 15
Johanson, J. 7
Johnson and Johnson 69
takeover of Janssen Pharmaceutica 57
Juniper Networks 136
Index

Kalvet, T. 135–6
Kampik, F. 3
Keller, W. 13, 12, 91, 101
Ketokivi, M. 10
Kinkel, S. 6, 7, 10, 185
Kleinknecht, A. 10
Knoke, D. 92
knowledge-intensive business services (KIBS) (and/in) 79, 131–8
computer services (NACE 72) 131
Estonia 134–6 see also subject entry
Germany 133
Israel 133, 136
other business services (NACE 74.1–74.4) 131
research and development (NACE 73) 131
United Kingdom 133, 137–9
knowledge intensive services (KIS) 71
Kohpaiboon, A. 83, 113
Kokko, A. 12, 16
Konings, J. 14
Kubeczko, K. 123, 126, 128
Kuemmerle, W. 11
Kumar, N. 7
Kundu, K.K. 173

Lachenmaier, S. 9
Lall, S. 5
Lan, X. 37
Latin America 85
Latvia 41, 45, 145
legislation (EU)
Regulation (EC) No.716/2007 (on FATS statistics) 29, 31
Leitner, S. 3, 117
Levinthal, D. 10, 13
Lewin, A.Y. 6, 113
Leydesdorff, L. 99
Li, Q.C. 9
Liefner, I. 37
Lipsey, R.E. 14
Lissoni, F. 6, 7, 11
literature on internationalisation of R&D 5–26
drivers of R&D internationalisation 5–12
at the firm level 9–12
at regional and country level 6–8
at sectoral level 8–9
impacts of MNE R&D and innovation activities on host 12–16
impacts of R&D and innovation activities abroad on home countries 16–17
Lonno, C. 12
Lööf, H. 7
Lorentz, A. 132
Lorenzen, M. 14
Luccese, M. 184
Lundan, S.M. 1, 15
Luxembourg 85, 184

Macao 34
Maggioni, M.A. 93
Mahnke, V. 14
Maira, A. 175
Malaysia 86, 87
Malerba, F. 8, 9, 71
Maloca, S. 6, 7, 10
Malta 45, 46
Männik, K. 135
Marin, A. 14
Markusen, J.R. 8, 9, 71, 185
Marsili, O. 8, 9, 71
Martin, R. 17
Mayer, K.E. 12
Mexico 86, 87
Michel, J. 16
Microsoft 135, 136
and the Chinese language 11
takeover of Skype 139
Midelfart, K.H. 6
Miller, S. 7
Mishra, A.K. 166
Mohnen, P. 10
Muchie, M. 81
Mudambi, R. 7, 11
Müller, O. 178

Nambiar, P. 178
Narasimhan, T.E. 162
Narula, R. 10, 11, 16
Netherlands 32, 57, 61, 62, 66, 69, 77, 85, 93, 96, 99, 102, 145, 162, 165, 184
Nones, B. 37
non-OECD countries 83, 88, 185
North America 192
Norway 44
The Internationalisation of Business R&D

Organisation for Economic Co-operation and Development see OECD

OECD
Activities of Foreign Affiliates statistics (OECD AFA) 31, 106–7, 114, 151
Bilateral Trade Database (OECD STAN) 145, 151
countries 185
definition of R&D 27–9
definition of intramural R&D expenditures 28
Frascati Manual 27, 28, 29
International Direct Investment Statistics (OECD IDI) 114
Main Science and Technology Indicators 114, 145
Patent Database 150
Structural Analysis Database (OECD STAN) 106, 114, 145, 151
Working Party on Innovation and Technology Policy (OECD TIP) 29
Working Party of National Experts on Science and Technology Indicators (OECD NESTI) 29
Orsenigo, L. 8, 71
outward BERD 29–34, 37, 39, 41, 47–51, 53, 57, 63, 66–9, 71, 83–9, 93–4, 98, 156, 183, 185, 195
and effect on domestic R&D activities 153–5
effects of global financial crisis on 190–94
of US firms in the EU 85–6

Palkovics, L. 128, 129
Papanastassiou, M. 16
Patel, P. 1, 10, 17, 153, 190
Pavin, K. 153
Pavitt, K. 1, 10, 190
Pavlínek, P. 14, 126, 127
Pearce, R. 5, 16
Peneder, M. 8, 71, 132, 189
pharmaceutical industry/ies 72–6
and decreasing R&D activity 75
research-based 76
Pianta, M. 184
Pieri, F. 153
Piscitello, L. 7, 16
Poland 86, 145, 166, 184

Portugal 45, 46, 85, 106, 161, 184
Pyka, A. 7, 13, 56, 159
Quatar 136

R&D internationalisation in Belgium, Czech Republic and Switzerland 53–70 see also Belgium; Czech Republic and Switzerland
cross-country observations on 69–70
R&D internationalisation across countries and over time 39–51
and the global perspective 49–50
inward BERD 39–44
main countries of origin of inward BERD 45–6
outward BERD 47–9
R&D internationalisation and the global financial crisis (and) 183–96
effects of crisis on outward BERD 190–94
empirical evidence for effects on inward BERD 186–90
possible effects of crisis 183–6
R&D internationalisation from an Indo–German perspective 159–82
Indian multinationals in Germany 160–69 see also subject entry and Germany
Rabbiosi, L. 16
Rammer, C. 16, 184, 185
Rannala, R. 135
Reif, X. 132
Reize, F. 15
relationship between the EU and the USA (and) 81–90 see also European Union and United States of America
the aggregate picture for 81–3
conclusions and notes for 89
inward BERD of EU firms in the US 84–5
outward BERD of US firms in the EU 85–6
new players in the internationalisation of R&D 86–9
Rényi, A. 93
Ries, J. 9
Robinson, C. 17
Romania 45, 119–26, 145, 166
automotive industry in 129–30
and Renault Technology Romania 129
Ronstadt, R.C. 5
Rothwell, R. 10
Russia 29, 31, 128

Sachwald, F. 11
Sadowski, B.M. 16
Sadowski-Rasters, G. 16
Safarian, A.E. 5
Saha, B. 163, 165, 167–8
Sanna-Randaccio, F. 7, 10
Sasidharan, S. 14
Sauvant, K.P. 159
Savona, M. 132
Scherer, F.M. 75, 76
Schlegelmilch, B.B. 16
Schmiele, A. 10, 16
Schmutzler, A. 10
Schuster, T. 176
Schwaag Serger, S. 2, 5
the sectoral perspective (and) 71–80
go geographical distribution of inward BERD at sectoral level 76–8
R&D internationalisation in the pharmaceutical industry 75–6
sectoral differences in R&D internationalisation 72–4
Senor, D. 136
Shimizutani, S. 16, 17
Siemens AG 172–5 see also German multinationals in India
Lighthouse projects 175
SMART initiative 174–5
Sinani, E. 12
Singapore 86, 87, 88, 163, 168
Singer, S. 136
Singh, J. 13
Skype 135–6
Slaughter, M.J. 14
Slovak Republic 61, 106, 119–25, 130, 134, 145, 184
R&D investments in 130
and Slovak Investment and Trade Development Agency 130
Slovenia 145
Smith, K. 153, 190
social network analysis (SNA) 92
Som, A. 81, 159, 178
Som, O. 185
South and Central America 183
South Korea 31, 61, 86, 166, 184
Spain 32, 41, 42, 85, 99, 145, 161
Stehrer, R. 3
Steinmueller, W.E. 113, 116
Stiebale, J. 15
Strobl, E. 12, 14
Strogatz, S.H. 94
structure of cross-country R&D expenditure (and) 91–104
actor characteristics of the network 95–7
closing comments for 101–2
relative strength of inward BERD links between individual countries 99–101
a social network perspective on international R&D flows 91–104
spatial structure of the network 98–9
structural characteristics of the network 93–5
Surendar, T. 166
Suzlon Energy Limited (and) 161–3, 165–8
drivers of overseas R&D 167
key geographical markets for 161
public policies 168
Renewable Energy Technology Center (RETC) 163
REpower Systems 161, 163, 166
Windenergie GmbH 165
Švač, V. 129
Sweden 33, 39, 44, 45, 48, 49, 50, 51, 66, 76, 77, 85, 96, 145, 191, 192
Switzerland 27, 41, 47–8, 49, 50, 51, 56, 58, 61, 69, 84, 89, 93, 96, 99, 101, 102, 190, 191, 193
chemical and pharmaceutical industries in 65–7
motives and goals of innovation activities of Swiss firms abroad 68
R&D internationalisation in 63–8
tacitness of knowledge base 8
Taiwan 34
Tanti, T. 166
Tata Group (India) 136
Taylor, K. 14
Taylor, P. 9
Teece, D.J. 10
Teirlinck, P. 33, 137
Thakur, M. 166
The Internationalisation of Business R&D

between the EU and the USA
R&D expenditure of EU firms in the

Urban, W. 2

Vahlne, J.-E. 7

Van Welsum 132

Venables, A.J. 15, 71

Verbeek, A. 2

Veugelers, R. 7, 10, 13, 14

virtuous circle 15

von Zedtwitz, M. 7, 11

Wasserman, S. 93, 95

Watts, D.J. 94

WEF Global Competitive Report (2011) 135, 137

Wise, E. 2, 5

Wojcik, D. 137–8

Wood, P. 137–8

Wößmann, L. 9

Yeaple, S.R. 13

Young, S. 14, 92

Zaheer, S. 7

Zahradnik, G. 2–3

Zanfei, A. 11, 12, 14

Zhang, J. 81

Zheng, L. 37