Index

Aaker, D.A. 31, 33
Aboody, D. 3–4, 38, 224
Aghion, P. 4, 48, 51
Akerlof, G.A. 38
Alderson, M.J. 51
Allegrezza, S. 14
Amir, A. 225, 247
analysts
  assessments 130–33, 230–32, 234
  conflicts of interest 64–5
  as information intermediaries 63–5
  limitations 210–11, 230–31, 234
  and strategic patenting 232
angel finance 43–4, 46–7
appropriation, meaning 68
Arora, A. 26, 57, 236–7
Arundel, A. 20, 25
Asparin 30
asymmetrical information
  in capital markets
    and corporate finance 40–43, 46–7
    and credit ratings 7–8, 94–6
    and the intangible economy 38–40, 48–9, 225
    pecking order theory 4–5, 41–2, 52
    reducing, methods for 53–5
    screening 54–5, 226
    signalling 53–5
    and technology-driven firms 38, 45, 48, 52–3, 62, 67, 224–5
capital structure irrelevance
  proposition 40–41
in corporate finance 40–43, 46–7
  due diligence 35, 54, 120, 237–8
  non-disclosure agreements 54
  sources of finance 43–50
IPR reporting influence on 7, 38, 53–5, 60, 62–3, 133–5, 233–4, 238–9
  and R&D investment/expenditure 4, 52, 224
Audretsch, D. 72
Austin, D.H. 60, 192, 232
Bayer 2, 30
Bennett, R. 32
Berger, A. 43–7
Bessen, J. 88
Bester, H. 45
Betker, M.J. 51
Bettman, J.R. 33
Bhatia, V. 28
biotechnology, development 104–5, 137
Bittelmeyer, C. 73
Black, B. 5
Blind, K. 25, 29
Block, J. 2, 14–15, 168, 233
Bloom, N. 14
brand association 15, 33
brand equity 31–3, 233
brand loyalty 32–3
Brown, S.P. 32
buy-and-hold returns (BHR)
  IPR management and stock market performance 166, 177, 180–82, 184, 186–9, 191–2, 200, 206–7, 212, 214–18, 231–2, 236
  patent ratio influence on 5, 166
capital markets
  asymmetrical information, impact of
    on corporate finance 40–43, 46–7
    on the intangible economy 38–40, 48–9, 225
    and IPR reporting 7, 38, 53–5, 60, 62–3, 133–5, 238–9
    pecking order theory 4–5, 41–2, 52
    and screening 54–5, 226
    and signalling 53–5
    and sources of finance 43–9
    on technology-driven firms 38–9, 45, 48, 52–3, 62, 67, 224–5
challenges 35
debt financing vs equity financing 4–5, 41–3, 48, 51–2, 96, 235
efficient-markets hypothesis 36–8
financial intermediaries, role of 43–4
forward-looking information, need for 239–41, 246–8
information efficiency 3, 5, 34–6, 94–6, 224
and credit ratings 72, 94–6, 226–7, 234–5
financial analysts role in 64, 234
meaning 33–4
public/private capital markets characteristics 34–5
as complementary finance sources 43–4
and securities regulation 57–9
disclosure rules 57–8, 246–7
insider information 58–9
and technical innovation
financing constraints for 49–53
sources of finance for 43–9
capital structure irrelevance proposition 40–41
Carey, G. 28
Carpenter, R. 4, 50
Casmatta, C. 47
Chan, L. 48–9, 198
Chang, J. 223–4
Chen, L.W. 32
Cheng, Q. 246
Chesbrough, H. 27, 111–12, 172, 229
Chiang, C.C. 23
Chung, K.H. 48, 191–2, 224
Cisco Systems 2, 30–31
Clark, K.B. 2, 14
Coca-Cola Company 16
Cockburn, I. 105
collateral
IPR as, debt finance limitations 45–6, 51–2, 75, 89, 94–6
community trademarks 69
competition
and brand loyalty 33
competitive advantage
disclosure, relevance to 63, 245
and growth statements 243, 245
and IPR management 22–3,
29–31, 158, 169, 228–9
and stock market performance 158, 169, 228–9
strategies for 2–3, 6, 25–6, 29–31
and voluntary reporting 63, 245
and IPR 17
defensive/offensive patent strategies 25–6
product characteristics 22
SMEs vs. multinationals, different approaches 23
complex technologies
and corporate interdependencies 21
patent management 21, 28
corporate finance
and asymmetrical information 46–7
debt vs. equity financing 4–5,
41–3, 48, 51–2, 235
due diligence 35, 54, 120, 237–8
financial reporting 7, 38, 53–5, 60,
62–3, 133–5, 224–5, 238–9
and financing constraints 50
non-disclosure agreements 54
pecking order theory 4–5, 41–2,
52
changing needs during corporate lifecycle 43–7
financial intermediaries, role of 43–4
SMEs and multinationals, differing needs of 44–5, 70
sources of
angel finance 43–4, 46–7
and funding gap 49–53
initial public offerings 48–9
internal finance 43–5, 52
leveraged finance 44, 51
and moral hazard 45–6, 52
public/private finance 34–5, 43–4
for start-up companies 43–6
venture capital 5, 43–4, 46–7, 52
stock market valuations
differences from credit rating valuations 94–5, 227, 234
credit default swaps 66
credit ratings and credit rating agencies
and information efficiency 94–6,
226–7, 234–5
as information intermediaries 65–6
methodologies 73–5
business risk vs. financial risk 74–5
industrial sector analysis 74
Index

ratings procedures 65–6
sovereign ceiling 74
and patent valuations
asymmetrical information 7–8
cash-flow adequacy 80, 83–5, 87, 90
default risk 72–3
and different rating categories 91
estimation methods 81–2
firm size 79, 83–6, 90
forward citations 9, 23, 29, 73, 75–7, 79, 83–5, 88, 90–91, 94–6, 227
interest rate 80, 83–5, 90
leverage 79–80, 83–5, 90
litigation risk 88–9, 95, 234–5
R&D flows 80–81, 83–5, 87, 90–91, 95
R&D stock 81, 83–7, 90
research 72–3
return on assets (ROA) 79, 82–6
short-term debt 80, 83–5, 90, 96
stock market valuations 94–5, 227, 234
study data and sample criteria 76–7
study results 82–93
subordinated debt 80, 83–6, 90, 96
trade-offs 95–6
customer loyalty, and brand awareness 32–3
Czarnitzki, D. 8, 73
Daniel, K. 38
debt financing
credit default swaps 66
credit rationing 50, 96
vs. equity financing 4–5, 41–3, 48, 235
IPR as collateral, limitations of 45–6, 51–2, 75, 89, 94–6
and moral hazard 45–6, 52
and profitability measurements 44 of R&D investment 4, 45, 50–51
DeMeza, D. 50
Demsetz, H. 105
Deng, Z. 240–41
disclosure
competitive advantages, relevance to 63, 245
compulsory reporting 55–9
importance 53
incentives for 62–3, 246
by independent intermediaries 63
insider information 3–4, 58–9, 67, 224
as risk management mechanism 62–3
royalty income, influence on valuation 62, 193–4, 242
voluntary reporting 59–63, 67, 226
and growth statements 240–48
limitations 247
and stock market uncertainty 189–206, 234, 247
transparency, importance of 244–5
discrete technologies, patent management 21, 28, 98
dividends 174–5
due diligence 35, 54, 120, 237–8
Eberhardt, A.W. 4, 48
economic performance/growth and capital markets 33–4
asymmetrical information, and corporate finance 40–43
asymmetrical information, and the intangible economy 38–40, 48–9, 225
efficient-markets hypothesis 36–8
information efficiency 34–6
technical innovation, financing constraints 49–53
technical innovation, sources of finance for 43–9
and customer loyalty 32
drivers 1, 12–15
IPR influences on
generally 1, 18–20
performance-related contingency-factors 20–23
product characteristics 22
product lifecycle 21–2, 228, 230
 technological complexity 21
meaning 68
Solow-Swan model 13–14
Ederington, L.H. 66

efficient-market hypothesis 36–8, 69

Ehrat, M. 5

entrepreneurs, sources of finance for 45
equity finance

vs. debt finance, for R&D expenditure 4–5, 45, 50–51, 235

Ernst, H. 78

Europe

insider information, regulatory controls 58–9
pharmaceutical industry regulation 108–11
R&D investment, as proportion of GDP 14
exclusivity 137, 228–9
duration of exclusivity 168–70, 181–3, 193, 199–203, 206–8, 215

Fama, E.F. 37
financial intermediaries 43–4, 70
conflicts of interest 64–5
credit rating agencies 65–6
see also analysts
financial reporting, of IPR

analysts’ assessments 130–33, 230–31, 234
asymmetrical information 7, 38, 60, 62–3, 133–5, 224–5, 238–9
regulatory developments 53–4
screening 54–5, 226
signalling 53–5
and stock market volatility 190–91
compulsory reporting 55–9
and IPR valuation

and company valuation 133–5, 191–2
difficulties 1, 3–4, 38–43, 48, 67
pipeline valuation approach 130–33, 161–2, 192–3, 198, 199–200
and stock market uncertainty

IPR in-licensing reporting 203, 205–6, 222
IPR out-licensing reporting 203–4, 207–8, 221
IPR pipeline reporting 198, 199–200, 208–9, 219, 233–4
IPR product reporting 201–3, 208–9, 220
product-related reporting 191–2
sources of 237
study results 197–210
voluntary reporting 59–63, 67, 226
and competitive advantage 63, 245
growth statements 240–48
incentives 62–3, 128–9, 244–5
reluctance, reasons for 132–3
as risk management mechanism 62–3
and stock market uncertainty 189–206, 234, 247
financial reporting standards

developments 56, 70–71, 246–7
intangible assets 223–4
consideration of 56, 239–40
forward-looking information, need for 239–41, 246–8
meaning of 56–7
purpose 55, 67
and securities regulation
disclosure rules 246–7
insider information 58–9
relationship between 57
financial statements

and intangible assets 1, 3–4, 55
forward-looking information, need for 239–41, 246–8
meaning 56–7
usefulness for valuation 39–40, 55–6
first-mover advantage 17, 22
Fluck, Z. 44–5

forward citations 9, 23, 29, 73, 75–7, 79, 83–5, 88, 90–91, 94–6, 227
free-riders 16
freedom-to-operate strategies

and IPR management 26, 112–15, 117, 119–29, 132–5, 228, 231–2, 243–4
and stock market performance 166–7, 176–9, 192–3, 199–206, 208, 212–13
Gambardella, A. 57, 236–7
Garcia-Vega, M. 23
Garten, J. 223
Gassmann, O. 27, 171, 230
generic products, meaning 136
Genetech 104–5
genetic engineering, development 104–5
German Federal Financial Authority 59
Gilson, R. 5
Goh, J.C. 66
Gompers, P. 46–7
Gottschalk, S. 21–2
Graham, S. 29
Greenhalgh, C. 2
Griliches, Z. 2, 14
Grindley, P. 28, 170, 229
Grossman, S.J. 37, 235
growth statements and commercialisation strategies 241–3
complementary disclosures 247–8
freedom-to-operate 243–4
incentives 245–6
limitations 244–7
proposals for 240–48
Gu, F. 60, 62, 193–4, 242
Guarda-Rauchs, A. 14
Guo, R. 5, 191, 247
Hall, B.H. 4–5, 22, 44–5, 49–50, 52, 88
Hand, J. 244–5
Hao, X. 239
Harhoff, D. 52
Healy, P. 62–3
Hellmann, T. 50
Helmers, C. 73
Henderson, R. 105
Hermann, A. 33
Hirschey, M. 5
Holthauser, R. 66
Hoyer, W.D. 32
Hull, J. 66
Hulten, C.R. 239
Hutton, A.P. 247
information/knowledge information efficiency analysts’ role in 63–4
of capital markets 34–6, 94–6, 224
and credit ratings 94–6, 226–7, 234–5
efficient-market hypothesis 36–8, 69
prior knowledge, importance of 15
public good characteristics 15–16
technical knowledge, and added value 13
transfer of, transaction costs 15
transparency, importance of 244–5
see also asymmetrical information; disclosure; insider information information intermediaries see analysts; credit ratings initial public offerings and intangible assets/IPR relevance of 72–3 valuation of 48–9 regulatory criteria 57–8 survival rates following 72–3 insider information 3–4, 67, 224 regulatory restrictions on 58–9 intangible assets as collateral, applicability of 45–6, 51–2, 75, 89, 94–5 costs model 15, 56–7 economic lifetime and benefits 56–7 importance 1, 3–4 meaning 2, 56 differences from tangible assets 15, 45–6 as public goods 15–16 R&D influences on 5, 166, 224–5 valuation difficulties 1, 3–6, 38–43, 48, 56, 67 financial statements role in 39–40, 55 and initial public offerings 48–9, 72–3 Skandia Navigator approach to 238–9 solutions for 225–6, 238–9 stock market role in 8, 10, 48–9, 234 time lapse before product commercialisation 78, 230, 240 intangible economy drivers for 12–15, 223–4
meaning 12
strategic role of IPR 224–5
trends 223–4
intellectual capital, meaning 237
intellectual property rights
as collateral for debt finance 45–6, 51–2, 75, 89, 94–6
influences of
on competitiveness 2–3, 617
and firm value 2–3
generally 20–21
and market failure correction 16–18
and monopoly power 16–17
product characteristics 22
product lifecycle 21–2, 228, 230
on productivity and market value 2–3, 17–18
technological complexity 21
public information on 5–6
see also IPR management; patents; trademarks
International Financial Reporting Standards
costs model 56–7
meaning of intangible assets under 56–7
purpose 55–6
investments
and efficient-market hypothesis 36–8, 69
informational requirements 35–6
net present value (NPV) assessments 35, 41
IPR management
asymmetrical information
and IPR reporting patterns 60, 133–5, 233–4
and competitive advantage 158, 169, 228–9
and corporate survival rates 72–3
developing trends 67
financial reporting
and company valuation 133–5, 224–5
standards 53–9
patents, functions of 24–7
commercialisation of technology 26–7
market restraint 26
and R&D support 113–17, 153–4, 228
research limitations 68
stock market performance
business model, relevance of 9, 111–12, 119–20, 146–8, 236
buy-and-hold returns (BHR) 166, 177, 180–82, 184, 186–9, 191–2, 200, 206–7, 212, 214–18, 231–2, 235
competitive advantage 158, 169
data sample and collection method 140–42
firm age 144–5, 174, 197, 199, 202, 204–5, 219–22
firm characteristics 143–4
firm size 144, 173–4, 176–7, 180, 182, 184, 186, 188, 196, 197, 199, 202, 204–5, 212, 214–22
freedom-to-operate analysis 166–7, 176–9, 192–3, 199–206, 208, 212–13
IPR abandonment 171, 183–4, 208, 229, 232
IPR department characteristics 148–9
IPR management strategies 148
IPR motives 150–53
IPR objectives 149–50
IPR replacement value 165–6
IPR reporting and stock market uncertainty 189–210, 233–4, 237
IPR reporting strategies 138–9, 159–64
model 138–9
patent and trademark activity 146–53
patent licensing activity 147–8, 151, 154–7, 230, 233
portfolio management 157–9
product range and proliferation 21–3, 146–8
R&D budget management 155–6
R&D intensity 4–5, 145–6, 196–9, 202, 237
R&D support 113–17, 153–4
<table>
<thead>
<tr>
<th>Index</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>respondents’ corporate position</td>
<td>143</td>
</tr>
<tr>
<td>study limitations</td>
<td>208, 210</td>
</tr>
<tr>
<td>study models</td>
<td>139–40</td>
</tr>
<tr>
<td>study results</td>
<td>176–210</td>
</tr>
<tr>
<td>technology transfer strategies</td>
<td>154–7</td>
</tr>
<tr>
<td>value for money</td>
<td>139, 149, 170–71, 183–5, 207–8, 216</td>
</tr>
<tr>
<td>strategic patenting</td>
<td>8, 25–7, 96, 98, 224–5</td>
</tr>
<tr>
<td>strategic role of strategic patenting</td>
<td>225</td>
</tr>
<tr>
<td>strategies</td>
<td></td>
</tr>
<tr>
<td>defensive/offensive</td>
<td>25–6</td>
</tr>
<tr>
<td>mixture of patents and trademarks, relevance of</td>
<td>29–31, 152–3</td>
</tr>
<tr>
<td>motives for</td>
<td>29</td>
</tr>
<tr>
<td>patent portfolio management</td>
<td>27–9</td>
</tr>
<tr>
<td>research into</td>
<td>6, 24–5</td>
</tr>
<tr>
<td>trademarks, functions of</td>
<td>29–31</td>
</tr>
<tr>
<td>and brand equity</td>
<td>31–3, 233</td>
</tr>
<tr>
<td>transparency, need for</td>
<td>244–5</td>
</tr>
<tr>
<td>voluntary reporting</td>
<td>67, 226</td>
</tr>
<tr>
<td>and competitive advantage</td>
<td>63, 245</td>
</tr>
<tr>
<td>growth statements</td>
<td>240–48</td>
</tr>
<tr>
<td>incentives</td>
<td>62–3, 128–9, 244–5</td>
</tr>
<tr>
<td>Japanese reporting framework</td>
<td>60–61</td>
</tr>
<tr>
<td>reluctance, reasons for</td>
<td>132–3</td>
</tr>
<tr>
<td>as risk management mechanism</td>
<td>62–3</td>
</tr>
<tr>
<td>royalty income disclosures</td>
<td>62, 193–4, 242</td>
</tr>
<tr>
<td>and stock market uncertainty</td>
<td>189–206, 234, 247</td>
</tr>
<tr>
<td>see also under pharmaceutical industry</td>
<td></td>
</tr>
<tr>
<td>Janz, N.</td>
<td>25</td>
</tr>
<tr>
<td>Japan</td>
<td></td>
</tr>
<tr>
<td>R&amp;D investment, as proportion of GDP</td>
<td>14</td>
</tr>
<tr>
<td>Jeng, L.A.</td>
<td>48</td>
</tr>
<tr>
<td>Jennewein, K.</td>
<td>2, 30</td>
</tr>
<tr>
<td>Kabla, I.</td>
<td>20</td>
</tr>
<tr>
<td>Kaplan, R.S.</td>
<td>47</td>
</tr>
<tr>
<td>King, R.G.</td>
<td>34</td>
</tr>
<tr>
<td>Kingston, W.</td>
<td>28</td>
</tr>
<tr>
<td>Kline, D.</td>
<td>60–61</td>
</tr>
<tr>
<td>knowledge see information</td>
<td></td>
</tr>
<tr>
<td>Kortum, S.</td>
<td>47–8</td>
</tr>
<tr>
<td>Kothari, S.</td>
<td>86, 190</td>
</tr>
<tr>
<td>Kraft, K.</td>
<td>8, 73</td>
</tr>
<tr>
<td>Kütting, K.</td>
<td>40, 57</td>
</tr>
<tr>
<td>Landes, W.M.</td>
<td>31</td>
</tr>
<tr>
<td>Lang, M.</td>
<td>62</td>
</tr>
<tr>
<td>Lanjouw, J.</td>
<td>88, 95</td>
</tr>
<tr>
<td>Leftwich, R.</td>
<td>66</td>
</tr>
<tr>
<td>Lehmann, B.</td>
<td>72</td>
</tr>
<tr>
<td>Leland, H.E.</td>
<td>53</td>
</tr>
<tr>
<td>Lemley, M.</td>
<td>96, 237</td>
</tr>
<tr>
<td>lemon patents</td>
<td>237</td>
</tr>
<tr>
<td>identification difficulties</td>
<td>8, 38–9, 51, 73, 89, 237</td>
</tr>
<tr>
<td>and strategic patenting</td>
<td>197–8, 224–5</td>
</tr>
<tr>
<td>Lerner, J.</td>
<td>44–5, 47, 49–50, 52</td>
</tr>
<tr>
<td>Lev, B.</td>
<td>2–4, 38, 60, 62, 193–4, 223–4, 239, 242, 244–5, 247</td>
</tr>
<tr>
<td>leveraged finance</td>
<td>44, 51, 79–80, 83–5, 90</td>
</tr>
<tr>
<td>Levin, R.C.</td>
<td>20</td>
</tr>
<tr>
<td>Levine, R.</td>
<td>34</td>
</tr>
<tr>
<td>Lo, K.</td>
<td>246</td>
</tr>
<tr>
<td>Longland, M.</td>
<td>2</td>
</tr>
<tr>
<td>Lundholm, R.</td>
<td>62</td>
</tr>
<tr>
<td>Mahlich, J.</td>
<td>14</td>
</tr>
<tr>
<td>Mairesse, J.</td>
<td>2, 14</td>
</tr>
<tr>
<td>Majluf, N.</td>
<td>41–2</td>
</tr>
<tr>
<td>Malmberg, C.</td>
<td>21, 167</td>
</tr>
<tr>
<td>Mansfield, E.</td>
<td>20, 50</td>
</tr>
<tr>
<td>market failure, correction mechanisms</td>
<td>16–18</td>
</tr>
<tr>
<td>Mendonca, S.</td>
<td>30</td>
</tr>
<tr>
<td>Mensah, Y.M.</td>
<td>23</td>
</tr>
<tr>
<td>Meurer, M.J.</td>
<td>88</td>
</tr>
<tr>
<td>Microsoft 239</td>
<td></td>
</tr>
<tr>
<td>Micu, M.</td>
<td>66</td>
</tr>
<tr>
<td>Miller, M.H.</td>
<td>40–41</td>
</tr>
<tr>
<td>Ministry of Economy, Trade and Industry (Japan)</td>
<td></td>
</tr>
<tr>
<td>IPR management reporting</td>
<td></td>
</tr>
<tr>
<td>framework 60–61</td>
<td></td>
</tr>
<tr>
<td>Modigliani, F.</td>
<td>40–41</td>
</tr>
<tr>
<td>monopoly power, consequences of</td>
<td>16–17</td>
</tr>
<tr>
<td>Moody’s</td>
<td>65–6</td>
</tr>
</tbody>
</table>
Motorola 27–8
multinational companies
  corporate finance needs 44–5, 70
  IPR role in competition 23
Myers, S.C. 41–2

Nakamura, L. 14
Nakanishi, T. 4
net present value (NPV) assessments 35, 41

Opler, T.C. 44, 51

Palepu, K. 62–3
Parchomovsky, G. 29
Patel, P. 25
patent licensing
  financial reporting
    of in-licensing 203, 205–6, 222
    of out-licensing 203–4, 207–8, 221
  voluntary reporting 60–61
importance of 27, 230, 233
in pharmaceutical industry
  in-licensing 119–20, 154–6, 164,
    172–3, 187–9, 194–6, 203,
    205–6, 218, 222, 229, 233–4
  out-licensing 118–19, 156–7,
    162–4, 171–2, 185–7, 194–5,
    203–4, 207–8, 217, 221, 230,
    233–4
and stock market performance 147–8, 151, 154–7, 230, 233
patents
  applications, corporate behaviour trends 25
  costs of 22–3
  enforcement 23, 121–2, 158–9
  functions 24–7, 69, 237
influences
  on competitiveness 17
  on imitation costs 20
  intensity 197, 199, 202, 235
  on performance and productivity 2, 20
  on stock market uncertainty 197,
    199, 233–4, 237
  on survival rates 72–3
lemon patents
  identification difficulties 8, 38–9,
    51, 73, 89, 237
  and strategic patenting 197–8,
    224–5
  litigation risks 88–9, 95, 228, 234–5
  patent bulks 28, 69
  patent renewals 69–70
  patent thickets 21
  portfolio management 27–9
product lifecycle
  first-mover advantage 17, 22
  IPR management 123–4, 126–7,
    228, 230
IPR reporting and stock market uncertainty 192
patent proliferation 21–3
and patent protection 21–2, 230
time lapse before product commercialization 78, 230,
  240
product linked patents 232
impact on valuation 60, 191–2
proliferation 21–2
  and company size 23
  discrete vs. complex technologies 21, 98
  and product diversification 21–3,
    146–8
  products vs. processes 22
public information on 5–6
and secrecy, compared with 15, 17, 22
strategic patenting 8, 96, 98, 232
  functions of 25–7
  and lemon patents 197–8, 224–5
  total factor productivity, influence on 14
  and trademarks, complementarity 29–31, 152–3
valuation
  analysis methods 130–33
  cash-flow adequacy 80, 83–5, 87,
    90
  and commercialisation strategies 241–3
  cumulative value of component parts 13
  firm size 79, 83–6, 90
  forward citations 9, 23, 29, 73,
    75–7, 79, 83–5, 88, 90–91,
    94–6, 227
growth statements 240–48
interest rate 80, 83–5, 90
leverage 79–80, 83–5, 90
litigation risk 88–9, 95, 228, 234–5
and market share 241–2
models 241–2
patent family size 75–6, 79, 83–5, 87–8, 90–91, 95–6
patent flows 78, 90–91, 95
patent stock 78
patent value indicators 75–6
pipeline valuation approach 130–33, 161–2, 192–3, 198, 199–200
and product value 17
R&D flows 80–81, 83–5, 87, 90–91
R&D stock 81, 83–7, 90
return on assets (ROA) 79, 82–6
short-term debt 80, 83–5, 90, 96
subordinated debt 80, 83–6, 90, 96
volume and efficiency, relationship between
discrete vs. complex technologies 21, 98
see also under pharmaceutical industry
pecking order theory 4–5, 41–2, 52
Perez, C. 34
Peterson, B. 4, 50
pharmaceutical industry
industry overview
biotechnology, development of 104–6
clinical trials 109–10
corporate organisational trends 105–6
generic products 108, 115, 122, 131–2, 136
genetic engineering, development of 104–5
history and evolutionary patterns 102–7
industry structure 107–8
marketing and data exclusivity 110–11
marketing authorisation 110
originator firms 108
public funding trends 104
random screening processes 103–4
regulatory framework 108–11
research processes, development trends 103–5
strategic alliances and collaborations 106–7, 230
supplementary protection certificates 111
technology transfer 106–7
transaction cost economics in 105
IPR management 8–10
and barriers to entry 115
business model, dedicated biotechnology firm (DBF) 111–12, 119
business model, product-based 9, 111, 119–20, 236
and competitive position 158
formulation patents 115
importance of 123–4
lifecycle management 123–4, 126–7, 228, 230
management approaches, at different developmental stages 124–7
market responsiveness, need for 124, 126
during new product development phase 113–24
objectives 112–13, 124, 126–7
patent enforcement 23, 121–2, 158–9
patent licensing, importance of 27, 230, 233
patent licensing, in-licensing 119–20, 154–6, 164, 172–3, 187–9, 194–6, 203, 205–6, 218, 222, 229, 233–4
patent licensing, out-licensing 118–19, 156–7, 162–4, 171–2, 185–7, 194–5, 203–4, 207–8, 217, 221, 230, 233–4
patent lifetimes 111
patent searches 113–14
patent strategies, functions of 25–7
performance impact of 124–7
portfolio generation, patents 114–16
portfolio generation, trademarks 116–17
portfolio management 120–22
portfolio reviews 120–21
R&D support 113–17, 153–4, 228
royalty income disclosure 62, 193–4, 242
stage-gate product development
process 114, 123–4
study data collection method
101–2
study model 100–101, 139
study purpose 98–100
study results 124–7, 176–210
technology transfer 117–20
trademark enforcement 122, 158–9
trademark portfolio generation
116–17
trademark valuation assessments
131–2
IPR reporting
analysts’ assessments 130–33, 230–32, 234
and asymmetrical information 60, 133–5, 233–4
and company valuation 133–5
and exclusivity 131–2, 137, 228–9
of in-licensing 164, 194–6, 203, 205–6, 222
of out-licensing 162–4, 194–5, 203–4, 207–8, 221
pipeline reporting 161–2, 192–3, 198, 199–200, 208–9, 219, 233–4
product reporting 162–3, 191–2, 201–3, 208–9, 220
reluctance, reasons for 132–3
reporting channels 160–61
reporting decision drivers 128–9
required disclosures 190–91, 246
and stock market uncertainty 189–210, 190–206, 233–4, 237
study model 139
voluntary patent licensing
reporting 60–61
IPR role, generally
in competitive strategies 2–3, 6, 25–6, 29–31
patent volume and effectiveness 21
and product performance 20–21, 232
litigation trends 158–9
stock market performance
business model, relevance of 9, 111–12, 119–20, 146–8, 236
buy-and-hold returns (BHR) 166, 177, 180–82, 184, 186–9, 191–2, 200, 206–7, 212, 214–18, 231–2, 235
competitive advantage 158, 169
firm age 144–5, 174, 197, 199, 202, 204–5, 219–22
firm characteristics 143–4
firm size 144, 173–4, 176–7, 180, 182, 184, 186, 188, 196, 197, 199, 202, 204–5, 212, 214–22
freedom-to-operate analysis 166–7, 176–9, 192–3, 199–206, 208, 212–13
IPR abandonment 171, 183–4, 208, 229, 232
IPR department characteristics 148–9
IPR management strategies 148
IPR motives 150–53
IPR objectives 149–50
IPR replacement value 165–6
IPR reporting strategies 138–9, 159–64
model 138–9
patent and trademark activity 146–53, 233
patent licensing activity 147–8, 151, 154–7
portfolio management 157–9
product range and proliferation 146–8
R&D budget management 155–6
R&D intensity 4–5, 145–6, 196–9, 202, 237
R&D support 153–4
respondents’ corporate position 143
study data sample and collection
method 140–42
study limitations 208, 210–11
study models 139–40
technology transfer strategies 154–7
value for money 139, 149, 170–71, 183–5, 207–8, 216
Planès, B. 49
Porter, M.E. 26
Posner, R.A. 31
Private Securities Litigation Reform Act 1995 (US) 246–7
process innovation 22
product lifecycle
first-mover advantage 17, 22
IPR management 123–4, 126–7, 228, 230
IPR reporting and stock market uncertainty 192
patent proliferation 21–3
and patent protection 21–2, 230
time lapse before product commercialization 78, 230, 240
product quality, and brand awareness 33
public goods, meaning 15–16
Pyle, D.H. 53
Rajan, R.G. 44, 51
Ramb, F. 5, 55, 240
Rasmussen, B. 107
R&D
attrition rates 50–51
flows, and credit ratings 80–81, 83–5, 87, 90–91, 95
influences of 1–2
investment/expenditure on
asymmetrical information 4, 52, 224–5
and capital markets 34
and corporate market value 14–15, 49, 224
debt financing vs. equity financing 4–5, 45, 50–51, 235
and economic growth/performance 2, 14–15
financing constraints 49–50
intensity and capital costs, links between 4–5, 237
and leveraged finance 44, 51
as proportion of GDP 14
as value driver 239
and venture capital 48–9, 52
meaning 14
patent application trends 25
positive externalities arising from 16
see also patent licensing
red biotechnology, meaning 135
Reitzig, M. 5, 24, 28, 55, 229, 240
Richardson, V. 5
risk management
credit rating
analysis 73–5
and litigation risk 88–9, 95, 234–5
role in 65, 72–3
and voluntary disclosure 62–3, 246
Rivette, K. 60–61
Rogers, M. 73
Romain, A. 48
Romer, P. 12–13
Rundle-Thiele, S. 32
Sahlman, W. 5
Sandner, J. 2, 14–15, 168, 233
Sattler, H. 33
Schankerman, M. 20, 88, 95
Schumpeter, J. 1, 17, 34
Schumpeterian competition 17
screening 54–5, 226
secrecy, advantages compared with patents 15, 17, 22
securities, meaning 69
securities regulation 67
and financial reporting standards
disclosure rules 246–7
insider information 58–9
relationship between 57
Seethamraju, C. 60, 194, 241
Shapiro, C. 96, 237
Sheehan, J.E. 27, 171
Siegelman, P. 29
signalling 53–5
Skandia Navigator 238–9
SMEs
corporate finance
needs 44–5
sources 44–6
patents
financial constraints over 23
Solow, R. 13–14
Solow-Swan model of economic growth 13–14
Somaya, D. 29
sovereign ceiling 74
Spence, M. 53–4
Standard & Poor 65–6
credit rating methodology of 73–5
start-up companies, sources of finance for 43–6
Stiglitz, J.E. 4, 37, 50–51, 235
stock market performance
market failure, correction mechanisms 16–18
valuations, differences from credit ratings 94–5, 227, 234
see also under IPR management; pharmaceutical industry
strategic patenting 8, 25–7, 96, 98, 232
and lemon patents 197–8, 224–5
Strömberg, P. 47
Swan, T. 13–14
Tauber, E.M. 23
technical innovation
and capital markets
financing constraints for 49–53
influence on corporate performance 33–4
public policy developments 70
sources of finance for 43–9
as driver for economic performance/growth 12–15
Solow-Swan model 13–14
IPR management
and corporate survival rates 72–3
technology transfer
in pharmaceutical industry 117–20
importance 27, 230
patent in-licensing 119–20, 154–6, 164, 172–3, 187–9, 194–6, 203, 205–6, 218, 222, 229, 233–4
patent licensing, importance of 27, 230, 233
Teece, D. 27–8, 111–12, 170, 172, 229
Thumm, L. 167
Titman, S. 38, 44, 51
total factor productivity 14
trademarks
and brand equity 31–3, 233
corporate performance
voluntary reporting, influence on 60
influences
intensity 197, 199, 202
on stock market uncertainty 197, 199
management strategies 29–33
meaning 31
and patents, complementarity 29–31, 152–3
in pharmaceutical industry
enforcement 122, 158–9
and exclusivity 168, 180–83, 206–8
monitoring and communication mechanisms 122
portfolio generation 116–17
portfolio reviews 121
stock market performance 146–53, 233
valuation assessments 131–2
proliferation and diversification 23
purpose of 29–31
searches 22, 116–17
valuation 21, 131–2
transaction costs, and knowledge transfer 15
transparency, importance of 244–5
Tsao, H.Y. 32
Udell, G. 43–7
Ughetto, E. 40, 45, 86
United States
financial reporting reforms 246–7
pharmaceutical industry regulation 108, 111
R&D investment, as proportion of GDP 14
value for money
IPR management and stock market performance 139, 149, 170–71, 183–5, 207–8, 216
Van Pottelsberghe, B. 48
Van Reenen, J. 14
<table>
<thead>
<tr>
<th>Term</th>
<th>Page(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>venture capital</td>
<td>5, 43–4</td>
</tr>
<tr>
<td>history</td>
<td>46–7</td>
</tr>
<tr>
<td>Initial Public Offerings, role in</td>
<td>48</td>
</tr>
<tr>
<td>and patented inventions in US</td>
<td>47–8</td>
</tr>
<tr>
<td>and R&amp;D expenditure, link between</td>
<td>48–9, 52</td>
</tr>
<tr>
<td>Wasley, C.</td>
<td>239–40</td>
</tr>
<tr>
<td>Webb, D.C.</td>
<td>50</td>
</tr>
<tr>
<td>Weiss, A.</td>
<td>4, 50–51</td>
</tr>
<tr>
<td>Wells, P.C.</td>
<td>48</td>
</tr>
<tr>
<td>White, L.</td>
<td>65</td>
</tr>
<tr>
<td>Wilbon, A.</td>
<td>72–3</td>
</tr>
<tr>
<td>Williamson, O.E.</td>
<td>51</td>
</tr>
<tr>
<td>Wong, A.</td>
<td>47</td>
</tr>
<tr>
<td>Wu, J.</td>
<td>239–40</td>
</tr>
<tr>
<td>Zarowin, P.</td>
<td>223, 239</td>
</tr>
<tr>
<td>Zervos, S.</td>
<td>34</td>
</tr>
<tr>
<td>Ziedonis, R.</td>
<td>22, 51</td>
</tr>
<tr>
<td>Zingales, L.</td>
<td>44</td>
</tr>
</tbody>
</table>