Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

Index

absolute value of production equipment, Japan-US comparison 20-22 AFTA (ASEAN Free Trade Area) 231, 237, 238, 239, 249-250, 252 AICO (ASEAN Industrial Cooperation) 231, 238-244 American auto industry see US auto industry American Motors 137 ASEAN (Association of Southeast Asian Nations) region automobile industry in Thailand 252-255 complementary division of labor 237-245, 250-252 current options for Japanese auto makers 231 impact of China's automotive industry 257-258 impact of the Asian economic crisis (1997) 230-231 Japanese auto makers' strategy before the currency crisis 231 potential automobile market 230 presence of Japanese auto makers 234, 235-237 Asia automobile industry in Thailand 252 - 255complementary division of labor 237-245, 250-252 current options for Japanese auto makers 231 history of local production 231-237 impact of China's automotive industry 257-258 impact of the Asian economic crisis (1997) 230-231 Japanese auto makers' strategy before the currency crisis 231

potential automobile market 230 presence of Japanese auto makers 231-237 Asian economic crisis (1997) impacts of 230-231 measures taken by Japanese auto makers 246-250 Aston Martin 205, 210 Automotive Industry Action Group (AIAG) 83-84 auto-parts industry changes in component procurement systems 155-160 formation of a global procurement system 185-194 mergers and acquisitions (mid 1990s) 155 modularization trend 161-163 restructuring and globalization 155-163, 185-194, 226-227 auto-parts standardization, Japanese restructuring (early 1990s) 102-103, 105-106 auto-parts suppliers changing supplier relationships 161-163 cooperation with 106-108 development of skills 170-171 emergence of global suppliers 155 impacts of auto industry reorganization 155-163 influence of global platform and sourcing strategies 185–192 module building 194 need for strategic management 194 participation in design and development 161 quality issues related to cost reduction 197-198 strategic M&A activities 194

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

318

Index

auto-parts supply approaches to modular systems 199 cost reduction and quality issues 197-198 drive to reduce number of suppliers 145.155 evaluation of suppliers 155-160 see also keiretsu supplier system auto-parts supply in Europe disadvantages of European system 168, 169-170 European purchasing system 167-168 Fiat's reforms 183 horizontal transactions 181 in-house production 185 influence of the keiretsu system 171-174 level of in-house production 167 modular system and supplier parks 185 Opel's reforms 181-182 range of reform strategies 182 reform of the supplier system 181-185 reformed systems compared with keiretsu 184–185 Renault's reforms 182, 183-184 use of system suppliers 182 VW's reforms 182 auto-parts supply in Japan see keiretsu supplier system auto-parts supply in the US attempts to copy the keiretsu system 175, 176 benchmarking of suppliers 176-181 Big Three copying of the keiretsu system 175, 176 building databases of evaluations for suppliers 176-181 disadvantages of US systems 168, 169-170 evaluation of suppliers 176-181 influence of the keiretsu system 171-175 Japanese transplants in the US 65–72 level of in-house production 167 moves toward globalization 180-181 problems with copying the keiretsu

system 176

reconstruction of the supplier system 176-181 reform of the supplier system 174-181 spin-out of parts divisions 176 strategic changes in the supplier system 176-181 US purchasing system 167-168 use of IT in supplier evaluation 176 - 181vertical integration 174 benchmarking of suppliers 176-181 Big Three causes of downfall 314-315 impact of the 2008 global financial crisis 314-315 impact of the lean production revolution 53-55 see also Chrysler; Ford; GM (General Motors) Big Three reform adaptation and integration of Japanese ideas 87-89 Automotive Industry Action Group (AIAG) 83-84 concurrent engineering system 86-87 difficulties in reforming traditional plants 86 establishing strategic management 84-85 expansion of the JIT concept 87 influence of Japanese production systems 83-84 introduction of IT 86-87 introduction of lean production systems 84, 85-86 lean management and business systems 87 lessons for the global auto industry 87-89 new model strategies 84-85 product development system reform 86 site management approach 88-89 speed of response to Japanese competition 86-87 strategic leadership 88-89 strategic use of IT 86-87 supplier system reform 85-86

Index

supply chain management concept 87 TQM (total quality management) 88 BMW, purchase of Rover 137 Bosch 161, 226 Brazil, importance in future markets 225 BRICs (Brazil, Russia, India, China), importance in future markets 225 bubble economy in Japan see economic bubble in Japan CAD CAM (computer-aided design and manufacturing) 105-106, 144-145 capital share, Japan–US comparison 23 cash flow ranking of manufacturers 141-144 CEPT (Common Effective Preferential Tariff) agreements 239, 252 China impact of emerging automotive industry 257-258 importance in future markets 225 presence of Japanese auto makers 232-233 China's automotive industry effects of entry into the WTO 269-272 effects of government policies 261-272 entry of US automotive companies 275-276 future of the industry 290-292 global environmental issues 283-285 growth and globalization challenges 283-292 history of development 261-272 Japanese auto makers' strategies 272-281 Japanese part-makers' strategies 281-283 joint ventures with foreign companies 263 - 264potential size of the market 260 problems faced by foreign investors 273-283 risks faced by foreign investors 285-290 Shanghai Automotive-VW joint venture 263-264, 275

Chrysler financial position in early 1980s 10 quality issues 197 see also Big Three; Daimler-Chrysler merger component suppliers see auto-parts industry component supply strategy, Ford's Project 2000 150 "concept-in" process 196 concurrent engineering system 86-87 cost focus in global sourcing 209 cost reduction, quality issues in auto parts 197-198 Daewoo 205-206, 211, 225, 233-234 Daihatsu 137 Daimler, focus on quality 197 Daimler-Chrysler merger 137-141, 206 alliance strategy 138-139 background to the merger 137-138 business performance outcomes 140 changing nature of competition 137-138 global funding opportunities 140-141 global strategy 208-209 impact on other manufacturers 137 integrating different enterprise cultures 213-215 strategic errors 211 Delphi 161, 181, 193, 226 Denso 226 design, localization in the US 72-78 design-in process development of 95-99 from "design-in" to "concept-in" 196 involvement of local suppliers 60, 69,71 Dongfeng Automotive Company 262, 265 economic bubble in Japan change in product development strategy 93-102 change in profit structure during 93 effects of collapse 57-59 impacts on Japanese auto makers 92-102

restructuring following the collapse of 94–108

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

320

Index

economic bubble in Japan (cont.) role in Japan's loss of competitiveness 92-102 economic indices, Japan-US productivity comparison 9-25 economies of scale as a global strategy 208-209 4 million unit scale theory 3-4, 136, 151-155 environmental strategies 145, 225-226 equipment utilization rate, Japan-US comparison 20 European auto industry adoption of Japanese-style production systems 89 influence of Japanese production systems 83-84 FAW Group (China) 211 Fiat cooperation with GM 137, 205-206, 210 reform of supplier system 183 financial crisis see global financial crisis (2008)First Auto Works 265 Ford financial position in early 1980s 10 global engine series 145 global M&A activities 137, 210, 211-212 integrating different enterprise cultures 215 productivity compared with Japanese companies 11-25 see also Big Three Ford System of mass production 1 Ford's Project 2000 global strategy 145-151, 204, 205, 206-209 component supply strategy 150 reform of corporate culture 150-151 world car concept 150-151 4 million unit scale theory 3-4, 136, 151-155 Fuji Heavy Industry 205-206, 210-211, 217, 220 funding for global businesses 140-141 Ghosn, Carlos restructuring of Nissan 115-122

view on keiretsu supplier systems 168-169 global automotive industry adaptation and integration of Japanese ideas 87-89 changing industrial paradigms 294-312 downfall of the US Big Three 314-315 future prospects for Japan 309-312 history of development 294–312 impact of the 2008 global financial crisis 314-316 role of IT innovation 298-299, 302-303 role of Japanese auto industry innovation 298-302 social environment issue 297 threats of saturation and stagnation 294-297 global financial crisis (2008) downfall of the Big Three 314-315 impacts on the Japanese auto industry 315-316 global platform strategies, influence on the auto-parts industry 185-192 global reorganization of the automotive industry accommodating market change 152-155 aims and methods of supplier reduction 155-160 alternatives to economies of scale 151-155 cash flow ranking of manufacturers 141-144 changes in component procurement systems 155-160 changing nature of competition 137-138 changing relationships with suppliers 161-163 competition in product development 152-155 drivers for international alliances and mergers 144-145 economies of scale argument 3-4, 136, 151-155 evaluation of suppliers 155-160 features of globalization 135-136

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

Index

flexible production systems strategies 151-155 four million unit scale theory 3-4, 136, 151-155 global funding opportunities 140-141 global strategies 151-155 impacts of CAE and digital CADCAM 144-145 impacts on the auto-parts industry 155 - 163importance of environmental strategies 145 Japanese pursuit of flexible production 152-155 modularization trend 152, 161-163 production ranking of manufacturers 141-144 reduced number of component suppliers 145 reducing component costs 145 reduction in the number of platforms 144-145, 152 reorganization strategies 136-151 sharing of global platforms 144-145, 152 situation before globalization 135 supplier participation in design and development 161 unification of basic components 145 see also Daimler-Chrysler merger; Ford's Project 2000 global sourcing strategies cost and quality issues 209 influence on the auto-parts industry 185-192 global strategies burden of legacy costs 203, 207 cost focus in global sourcing 209 Daimler-Chrysler merger 206, 208-209, 211 effects of platform strategies 207-208 European auto makers 204 focus on economies of scale 208-209 Ford 204, 205, 206-209, 210, 211-212 see also Ford's Project 2000 four million unit scale theory 3-4 future of global restructuring 225-227

global sourcing of parts 209

GM 204, 205-209, 210-212 importance of BRICs 225 Japanese development of global business 220-224 lessons from global strategies 209-212 M&A focus 210-212, 213-217 M&As in future 225-227 quality issues in global sourcing 209 reasons for deadlocked business operations 206-209 restructuring among suppliers 226-227 restructuring in the Japanese auto industry 217-219 sources of problems 206-212 strategic errors 206-212 US auto makers 204, 206-209 Volkswagen (VW) 204 GM (General Motors) cooperation with Fiat 137, 205-206, 210 financial position in early 1980s 10 global M&A activities 210-212 global strategy 204, 205-209 Nummi joint venture with Toyota 69-70.89 productivity compared with Japanese companies 11-25 see also Big Three GM Opel see Opel GM-Suzuki relationship 137 Heisei recession, effects of 57-59 high-profit financial structure, US auto industry 10 Honda cultural change (early 1990s) 122-129 localization of design and R&D 77-78 localization of management in the US 60-61, 62-63, 64 pressures to restructure 217 strategic restructuring 218-219, 220 strategy conversion (early 1990s) 122-129 TQM revolution 126-129 working with local suppliers 66-67 horizontal components procurement

systems 155, 181 Hyundai Motors 206, 233–234

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

322

Index

India importance in future markets 225 presence of Japanese auto makers 233 Indonesia see ASEAN region Isuzu 205-206, 210-211, 217, 220 IT databases of evaluations for suppliers 176 - 181introduction of 86-87 overdependence on effects of 212 role of IT innovation in globalization 298-299, 302-303 strategic use of 86-87 use in supplier evaluation 176-181 ITS (Intelligent Transportation System) 295 Jaguar 137, 205, 210 Japanese auto industry approaches to modularization 161-163, 185 approaches to restructuring 217-219 benefits of restructuring 218 changing basis for competition 39-50 changing supplier relationships 161-163 development of global business 220-224 economic indices compared to US 9-25 emergence of comparative advantage 8-9 foreign-affiliated companies 220 future prospects 309-312 global competitiveness 220-224 global strategies 217-219 impact of China's automotive industry 257-258 impacts of 1973 and 1981 oil shocks 92 impacts of the 2008 global financial crisis 315-316 impacts of the bubble economy 92-102 impacts of the yen exchange rate 93, 104 - 105international competitiveness 10 kanban system (just-in-time) 1-2, 45-50, 87, 171

labor productivity indices 26-34

loss of international competitiveness (early 1990s) 92-102 micromanagement approach 41-50 national and independent makers 220 pressures to restructure 217 process technology innovations 41-50 process yield 45-50 product development strategy in the economic bubble 93-102 production cost 41-44 production processes and management 40-50 production system 1-2 productivity gap with the US 8-9, 40-50 profit structure during the economic bubble 93 Japanese auto industry globalization design-in activities with local suppliers 60, 69, 71 drivers for globalization 57-60 effects of the bubble economy collapse 57-59 elimination of non-lean practices 58 - 59expansion of local parts procurement in the US 65-72 lean hybridization concept 80-81 lean optimization challenge 79, 80-81 local participation in QC activities 63-65 localization of management 60-65 localization of production 59-60 localization of R&D in the US 72-78 main regional targets 59 measures to lower costs 58-59 North American focus 59-60 recession-resistant industry structure 79,80-81 requirement for global sourcing 191-192 restructuring in the Heisei recession 57-59 strategic significance 59-60 working with local suppliers 65-72 Japanese auto industry restructuring (early 1990s) consequences of previous strategy mistakes 108-109

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

Index

contrasting strategies of Japan's auto makers 129-132 cooperation with parts suppliers 106-108 development of strategies for restructuring 102-108 differences in strategy-building ability 108-109 export challenges 104-105 Honda cultural change 122-129 Honda strategy conversion 122-129 Honda TQM revolution 126-129 impact of the yen exchange rate 104-105 Mitsubishi 131-132 Nissan alliance with Renault 115-122 Nissan restructuring 109-122 on-site development engineers 108 parts standardization 102-103, 105-106 product development organization 103-104 reduced lead-time to launch 107-108 reduced number of prototypes 105 - 106simultaneous engineering activities 106 - 108streamlining design and development 105-108 targets for restructuring 94-102 Toyota's introduction of TQM 130-131 use of digital CAD CAM 105-106 Japanese production system adaptation and integration in the US 87-89 influence in the US and Europe 83-84 see also kanban system (just-in-time); keiretsu supplier system Johnson Control 226 just-in-time (JIT, kanban system) 1-2, 45-50, 87, 171 kanban system (just-in-time) 1-2, 45-50, 87, 171 keiretsu supplier system attempts to copy outside Japan 175, 176 comparison with reformed European systems 184-185

competitive advantages 194-195 contributions to the auto industry 170-171 development of skills in suppliers 170-171 disadvantages 195 drivers for transformation 195-196 enduring merits of the system 198-199 environment for optimum functioning 195 features of the system 170 from "design-in" to "concept-in" 196 impact of global sourcing of parts 191–192 impacts of new technologies 195-196 influence in Europe and the US 171-175 pyramid-like trading structure 170 QCDE among parts makers 170–171 role in Japanese success 167 roles for small independent suppliers 196 semi-vertical integration 194-195 sources of competitive advantage 170-171 structure 194-195 theoretical framework 170-171 transformation 194-197 VA (value analysis) activities 171 variable efficiency of 168-169 VE (value engineering) 171 Kia Motors 206, 233-234 Korean GM 211 labor distribution rate, Japan-US comparison 19, 23 labor productivity index Japanese auto industry indices 26-34 relationship to wage index 23-25 labor productivity in the US 34-40 lead-time to launch, reducing 107-108 lean hybridization concept 80-81 lean management and business systems 87 lean manufacturing 1-2 lean optimization challenge 79, 80-81 lean production systems, introduction in the US 53-55, 84, 85-86

Lear 226

Cambridge University Press
978-0-521-86687-3 – Japan and the Global Automotive Industry
Koichi Shimokawa
Index
More Information

324

Index

Lincoln 210 local suppliers, working with 65-72 localization of management 60-65 localization of production 59-60 M&As (mergers and acquisitions) auto-parts suppliers 194 future activities 225-227 global strategies 210-212, 213-217 integrating different enterprise cultures 213-217 see also Daimler-Chrysler merger; Renault-Nissan alliance Magna 226 Malaysia see ASEAN region Malcolm Baldridge Award 83-84 management systems and productivity, Japan–US comparison 50–53 mass production disadvantages 2 Ford System 1 Sloanism 1 Mazda 205, 210, 217, 220, 225 micromanagement approach 41-50 MIT International Motor Vehicle Program 300 Mitsubishi 131-132, 220 model strategies, US auto industry 84-85 modular systems approaches to 199 European auto makers 185 Japanese auto makers 185 modules built by auto-parts suppliers 194 trend toward 152, 161-163 Nissan

foreign affiliation 220 inefficiency of *keiretsu* system 168–169 localization of design and R&D 73–77, 78 localization of management in the US 61, 63 partial restructuring (early 1990s) 109–115 pressures to restructure 217 productivity compared with US companies 11–25

restructuring under Carlos Ghosn 115-122 strategy mistakes 109-115 working with local suppliers 67-69 see also Renault-Nissan alliance NUMMI joint venture (Toyota-GM) 69-70,89 production system at Opel 181-182 oil shocks (1973 and 1981), impact on the Japanese auto industry 92 on-site development engineers 108 Opel 89 affiliation with GM 210 quality issues 197 reform of supplier system 181-182 parts see auto-parts per head yearly wages, Japan-US comparison 22 Philippines see ASEAN region platforms effects of platform strategies 207-208 reduction in number 144-145 sharing of global platforms 144-145 process technology innovations in Japan 41 - 50process yield, Japan–US comparison 45-50 product development during Japan's economic bubble 93-102 reform of the US system 86 production cost, Japan-US comparison 41-44 production equipment value per head, Japan-US comparison 19 production processes and management, Japan-US comparison 40-50 production ranking of manufacturers 141-144 production systems, flexible production strategies 151-155 production volume per employee, Japan-US comparison 12-13 productivity comparison (early 1980s) absolute value of production equipment 20-22 capital share 23 change in US competitive focus 34-40

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

Index

changing basis for competition 39-50 economic indices 9-25 emergence of Japanese comparative advantage 8-9 equipment utilization rate 20 factors affecting the US auto industry 8 - 9factors contributing to the productivity gap 40-50 high-profit financial structure in the US 10 importance of technological innovations 40-50 influence of management systems 50-53 Japanese international competitiveness 10 Japanese micromanagement approach 41-50 labor distribution rate 23 labor equipment ratio 19 labor productivity in Japan 26-34 labor productivity in the US 34-40 per head yearly wages 22 process technology innovations in Japan 41-50 process yield 45-50 production cost 41-44 production equipment value per head 19 production processes and management 40-50 production volume per employee 12 - 13productivity gap between Japan and the US 8-9 profit structure and investment in the US 34-40 quality and reliability 44 reasons for national differences 8-9 strategic investment patterns in the US 34-40 US value added per vehicle approach 40-41 value added for each employee 12 value added per vehicle 13-19 wage index related to productivity index 23-25

productivity comparison (present day), impact of the lean production revolution 53-55 profit structure and investment in the US 34-40 profit structure during Japan's economic bubble 93 prototypes, reducing numbers of 105-106 PSA Citroën 89 QC (quality control) activities, local participation 63-65 QC circles 88, 171 QCDE (quality, cost, delivery, engineering) in auto-parts supply 170 - 171quality and reliability, Japan-US comparison 44 quality issues cost reduction in auto parts 197-198 global sourcing 209 R&D, localization in the US 72-78 Range Rover 205, 210 recession-resistant industry structure 79.80-81 Renault 89 purchase of American Motors 137 reform of supplier system 182, 183-184 Renault-Nissan alliance 115-122, 137 integrating different enterprise cultures 215-217 reform of Nissan keiretsu system 168-169 Rover 137 Russia, importance in future markets 225 Saab 205-206, 210 Samsung Motors Inc. 234 Shanghai Auto Maker 265 Shanghai Automotive-VW joint venture 263-264, 275 simultaneous engineering activities 106-108 site management approach 88-89

Sloan, A.P., mass production system 7–19, 28

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

326

Index

South Korea, presence of Japanese auto makers 233-234 spin-out of parts divisions 176 strategic investment patterns in the US 34 - 40strategic leadership 88-89 strategic management establishment of 84-85 requirement for auto-parts suppliers 194 strategy-building ability, Japanese auto makers 108-109 strategy mistakes, consequences for Japanese auto makers 108-109 see also specific firms supplier parks 185 supplier system reform, US auto industry 85-86 suppliers see auto-parts industry supply chain management concept 87 Suzuki 137, 205-206, 210-211, 220 Taiwan presence of Japanese auto makers 234-235 working with local suppliers 72 technological innovations and productivity, Japan-US comparison 40-50 Thailand, emerging global production base 252-255 see also ASEAN region Toyota introduction of TQM 130-131 localization of design and R&D 78 localization of management in the US 61-62, 63-64 NUMMI joint venture with GM 69-70,89 pressures to restructure 217 productivity compared with US companies 11-25 Shimoyama Engine Factory 153–154 strategic restructuring 218-219, 220 working with local suppliers 69–72 Toyota-Hino 137 TQC (total quality control), expansion into TQM 88 TQM (total quality management) 88, 130-131

US design and R&D for Japanese transplants 72-78 focus of Japanese globalization effort 59 - 60Japanese auto production transplants 59 - 60management of Japanese transplants 60 - 65US auto industry change in competitive focus 34-40 changing basis for competition 39-50 economic indices compared to Japan high-profit financial structure 10 labor productivity 34-40 production cost 41-44 productivity gap with Japan 8-9, 40-50 profit structure and investment 34-40 strategic investment patterns 34-40 value added per vehicle 40-41 US auto industry reform adaptation and integration of Japanese ideas 87-89 Automotive Industry Action Group (AIAG) 83-84 concurrent engineering system 86-87 difficulties in reforming traditional plants 86 establishing strategic management 84-85 expansion of the JIT concept 87 influence of Japanese production systems 83-84 introduction of IT 86-87 introduction of lean production systems 84, 85-86 lean management and business systems 87 lessons for the global auto industry 87-89 new model strategies 84-85 product development system reform 86 site management approach 88-89 speed of response to Japanese competition 86-87 strategic leadership 88-89 strategic use of IT 86-87 supplier system reform 85-86 supply chain management concept 87 TQM (total quality management) 88

Cambridge University Press 978-0-521-86687-3 — Japan and the Global Automotive Industry Koichi Shimokawa Index <u>More Information</u>

Index

VA (value analysis) activities, *keiretsu* system 171 value added per employee, Japan–US comparison 12 value added per vehicle Japan–US comparison 13–19 strategic approach 40–41 VE (value engineering), *keiretsu* system 171 vertical integration components system 155 *keiretsu* supply system 194–195 parts supply system (US) 174 Visteon 150, 161, 181, 193, 226 Volkswagen (VW) 89 emphasis on quality 197 global strategy 204 reform of supplier system 182 Volvo 137, 205, 210, 225

wage index Japan–US comparison 23–25 relationship to labor productivity index 23–25

yen exchange rate, impacts on the Japanese auto industry 93, 104–105