Title page for 984406003

[Back to Results | New Search]

Student Number	984406003
Author	Chia-I Chang(張家翊)
Author's Email Address	andersonchang503@gmail.com
Statistics	This thesis had been viewed 434 times. Download 50 times.
Department	Graduate Institute of Industrial Management
Year	2011
Semester	2
Degree	Ph.D.
Type of Document	Doctoral Dissertation
Language	English
Title	The Economics and Strategy Management in a Closed Loop Supply Chain with Remanufacturing
Date of Defense	2012-06-12
Page Count	78
Keyword	• Closed-loop supply chain; Reversed logistics; Re
Abstract	This study deals with joint decisions on pricing and production lot-sizing in a closed-loop supply chain consisting of manufacturing and remanufacturing operations. We use an analytic scheme that helps policy-makers response to such a strategic question: under what conditions an OEM should participate in remanufacturing, in addition to the manufacturing operations. By coordinating the production quantities and retail prices of both versions of the same product, the OEM may generate more profit than that by manufacturing the new product alone. In contrast, under what conditions an OEM should not be involved with the remanufacturing, and choose a head-to-head competition with the third-party remanufacturer counterpart. Results show that the hybrid system does not outperform the manufacturing-only system under a generic setting, but achieves better performance under conditions with a higher degree of substitution and/or a lower remanufacturing cost. And strategic decision depends critically on the costs of remanufacturing and the competition intensity between the two versions. In this scenario, participating in remanufacturing is not only an issue of environmental responsibility, but a profit-boosting option.
Table of Content	Chapter 1Introduction1 1.1 Motivation1 1.2 Objectives3 1.3 Research Framework6 Chapter 2 Literature Review9 2.1 Closed-Loop Supply Chains9 2.2 Closed-Loop Supply Chains with Remanufacturing10 2.3 The Substitutable Products in a Competing Market11 2.4 Contracting and Channel Coordination11 Chapter 3 The Economics of a Closed-Loop Supply Chain with Remanufacturing13 3.1 The Problem Context and Notations13 3.2 The Model15

Reference

1.Arruñada, B., Vázquez, X.H., 2006. When your contract manufacturer becomes your competitor. Harvard Business Review 84 (9), 135-144.
2.Atasu, A., Sarvary, M., Van Wassenhove, L.N., 2008. Remanufacturing as a marketing strategy. Management Science 54 (10), 1731-1746.
3.Atasu, A., Guide Jr, V.D.R., Van Wassenhove, L.N., 2010. So what if remanufacturing cannibalizes my new product sales? California Management Review 52 (2), 56-76.
4.Bayindir, Z.P., Erkip, N., Gullu, R., 2005. Assessing the benefits of remanufacturing option under one-way substitution. Journal of the Operational Research Society 56 (3), 286-296.
5.Bayindir, Z.P., Erkip, N., Gullu, R., 2007. Assessing the benefits of remanufacturing option under one-way substitution and capacity constraint. Computers & Operations Research 34 (2), 487-514.
6.Cachon, G.P., 2003. Supply chain coordination with contracts, in: S. Graves, Dekok (Eds.), Handbooks in operations Research and Management Science: Supply Chain Management, Chapter 11, North-Holland, Amsterdam .
7.Cachon, G.P., Lariviere, M.A., 2005. Supply Chain coordination with revenues sharing contracts: strength and limitations. Management Science 51(1), 30-44.
8.Chen, J.M., Lin, I.C., Cheng, H.L., 2010. Channel coordination under consignment and vendor-managed inventory in a distribution system. Transportation Research Part E 46 (6), 831-843.
9.Chen, J.M., Cheng, H.L., Lin, I.C., 2011a. On channel coordination under price-dependent revenue-sharing: can eBay's fee structure coordinate the channel? Journal of the Operational Research Society 62, 1991-2001.
10.Chen, J.M., Cheng, H.L., Chien, M.C., 2011b. On channel coordination through revenue-sharing contracts with price and shelf-space dependent demand. Applied Mathematical Modelling 35, 4886-4901.
11.Chen, J.M., Chang, C.I., 2012a. The economics of a closed-loop supply chain with remanufacturing. Journal of the Operational Research Society (DOI: 10.1057/jors.2011.142)
12.Chen, J.M., Chang, C.I., 2012b. The co-opetitive strategy of a closed-loop supply chain with remanufacturing. Transportation Research Part E: Logistics and Transportation Review 48 (2), 387-400.
13.Cross, J., 1995. IT outsourcing: British petroleum's competitive approach. Harvard Business Review 73 (3), 94-102.
14.De Brito, M.P., Flapper, S.D.P., Dekker, R., 2003. Reverse logistics: a review of case studies. ERS-2003–012-LIS, Erasmus University Rotterdam, the Netherlands.
15.Debo, L.G., Toktay, L.B., Van Wassenhove, L.N., 2005. Market segmentation and product technology selection for remanufacturable products. Management Science 51 (8), 1193-1205.
16.De Figueiredo, J.N., Mayerle, S.F., 2008. Designing minimum-cost recycling collection networks with required throughput. Transportation Research Part E 44 (5), 731-752.
17.Dobos, I., Richter, K., 2006. A production/recycling model with quality consideration. International Journal of Production Economics 104 (2), 571-579.
18.Ferguson, M.E., Toktay, L.B., 2006. The effect of competition on recovery

strategies. Production and Operations Management 15 (3): 351-368.
19.Ferguson, M.E, 2010. Strategic Issues in Closed-Loop Supply Chains with Remanufacturing. In: Ferguson, M.E, Souza, G.C. (Eds), Closed-Loop Supply Chains: New Developments To Improve The Sustainability Of Business Practices. CRC Press, New York.
20.Fernández, E., Kalcsics, J., Nickel, S., Rios-mercado, R.Z., 2010. A navel maximum dispersion territory design models arising in the implementation of the WEEE-directive. Journal of the Operational Research 61 (3), 503-514.
21.Ferrer, G., 1997a. The economics of tire remanufacturing. Resources, Conservation and Recycling 19 (4), 221-255.
22.Ferrer, G., 1997b. The economics of personal computer remanufacturing. Resources, Conservation and Recycling 21 (2), 79-108.
23.Ferrer, G., Ayres, R.U., 2000. The impact of remanufacturing in the economy. Ecological Economics 32 (3), 413-429.
24.Ferrer, G., Swaminathan, J.M., 2006. Managing new and remanufactured products. Management Science 5 (1), 15-26.
25.Ferrer, G., Swaminathan, J.M., 2010. Managing new and differentiated remanufactured products. European Journal of Operational Research 203 (2), 370-379.
26.Galbreth, M.R., Blackburn, J.D., 2006. Optimal acquisition and sorting policies for remanufacturing. Production and Operations Management 15 (3), 384-392.
27.Galbreth, M.R., Blackburn, J.D., 2010. Offshore remanufacturing with variable used product condition. Decision Sciences 41 (1), 5-20.
28.Geyer, R., Van Wassenhove, L.N., Atasu, A., 2007. The economics of remanufacturing under limited component durability and finite life cycle. Management Science 53 (1), 88-100.
29.Giuntini, R., Gaudette, K., 2003. Remanufacturing: the next great opportunity for boosting US productivity. Business Horizons 46 (6), 41-48.
30.Görmez, N., köksalan, M., Salman, F.S., 2011. Locating disaster response facilities in Istanbul. Journal of the Operational Research Society 62, 1239-1252.
31.Guide Jr, V.D.R., Souza, G.C., Van Wassenhove, L.N., Blackburn, J.D., 2006. Time value of commercial product returns. Management Science 52 (8), 1200-1214.
32.Guide Jr, V.D.R., Van Wassenhove, L.N., 2009. The evolution of closed-loop supply chain research. Operations Research 57 (1), 10-18.
33.Guide Jr, V.D.R., Li, J., 2010. The potential for cannibalization of new products sales by remanufactured products. Decision Science 41 (3), 547-572.
34.Hammer, M., 2001. The superefficient company. Harvard Business Review 79 (8), 82-91.
35.Hauser, W.M., Lund, R.T., 2008. Remanufacturing: operating practices and strategies, Boston University. Available through <www.bu.edu/reman>.
36.Inderfurth, K., 2004. Optimal policies in hybrid manufacturing/remanufacturing systems with product substitution. International Journal of Production Economics 90 (3), 325-343.
37.Jeuland, A.P., Shugan, S.M., 1983. Managing channel profits, Marketing Science 2 (3), 239-272.
38.Junior, M.S., Filho, M.G., 2011. Production planning and control for remanufacturing: literature review and analysis. Production Planning & Control (DOI: 10.1080/09537287.2011.561815).
39.Kannan, G., Sasikumar, P., Devika, K., 2010. A genetic algorithm approach for solving a closed loop supply chain model: A case of battery recycling. Applied Mathematical Modelling 34, 655-670.
40.Ingene, C.A., Parry, M.E., 1995. Channel coordination when retailers compete. Marketing Science. 14, (4), 360-377.
41.Karakul, M., 2008. Joint pricing and procurement of fashion products in the existence of clearance markets. International Journal of Production Economics 114 (2), 487-506.
42.Katok, E., Wu, D.Y., 2009. Contracting in supply chains: a laboratory investigation. Management. Science 55 (12), 1953-1968.
43.Lee, D.H., Dong, M., 2008. A heuristic approach to logistics network design for end-of-lease computer products recovery. Transportation Research Part E 44 (3), 455-474.
44.Lee, D.H., Dong, M., 2009. Dynamic network design for reverse logistics operations under uncertainty. Transportation Research Part E 45 (1), 61-71.
45.Li, Y., Liu, Y., Liu, H., 2011. Co-opetition distributor's entrepreneurial orientation and manufacturer's knowledge acquisition: evidence from China. Journal of Operations Management 29 (1-2), 128-142.
46.Majumder, P., Groenevelt, H., 2001. Competition in remanufacturing. Production and Operations Management 10, 125-141.
47.Martin, P., Guide Jr, V.D.R., Craighead, C.W., 2010. Supply chain sourcing in remanufacturing operations: an empirical investigation of remake versus buy. Decision Sciences 41 (2), 301-324.
48.Mar-Ortiz, J., Adenso-Diaz, B., Gonzalez-Velarde, J.L., 2011. Design of recovery network for WEEE collection: the case of Galicia, Spain. Journal of the Operational Research Society 62, 1471-1484.
49.McGuire, T.W., Staelin, R., 2008. An industry equilibrium analysis of downstream. Marketing Science 27 (1), 115-130.
50.Mitra, S., Webster, S., 2008. Competition in remanufacturing and the effects of

government subsidies. International Journal of Production Economics 111 (2), 287-298.
51.Nagurney, A., Toyasaki, F., 2005. Reverse supply chain management and electronic waste recycling: A multitiered network equilibrium framework for e-cycling. Transportation Research Part E 41 (1), 1-28.
52.Nair, A., Narasimhan, R., Bendoly, E., 2011. Coopetitive buyer–supplier relationship: an investigation of bargaining power, relational context, and investment strategies. Decision Sciences 42 (1), 93-127.
53.Ordoobadi, S.M., 2009. Outsourcing reverse logistics and remanufacturing functions: a conceptual strategic model. Management Research News 32 (9), 831-845.
54.Paucar-Caceres, A., Espinosa, A., 2011. Management science methodologies in environmental management and sustainability: discourses and applications. Journal of the Operational Research Society 62 (9), 1601-1620.
55.Petruzzi, N.C., Dada, M., 1999. Pricing and the newsvendor problem: a review with extensions. Operations Research 47 (2), 183-194.
56.Ramos, T.R.P., Oliveira, R.C., 2011. Delimitation of service areas in reverse logistics networks with multiple depots. Journal of the Operational Research Society 62 (7), 1198-1210.
57.Sahni, S., Boustani, A., Gutowski, T., Graves, S., 2010. Furniture remanufacturing and energy savings. MITEI-1-e-2010, Sloan Management School, Massachusetts Institute of Technology, Cambridge.
58.Savaşkan, R.C., Bhattacharya, S., Van Wassenhove, L.N., 2004. Closed-loop supply chain models with product remanufacturing. Management Science 50 (2), 239-252.
59.Savaşkan, R.C., Van Wassenhove, L.N., 2006. Reverse channel design: The case of competing retailers. Management Science 52 (1), 1-14.
60.Sheu, J.B., 2011. Bargaining framework for competitive green supply chains under governmental financial intervention. Transportation Research Part E 47 (5), 573-592.
61.Shi, J., Zhang, G., Sha, J., Amin, S.H, 2010. Coordinating production and recycling decisions with stochastic demand and return. Journal of Systems Science and Systems Engineering 19 (4), 385-407.
62.Shi, J., Zhang, G., Sha, J., 2011a. Optimal production and pricing policy for a closed loop system. Resources, Conservation and Recycling 55 (6), 639-647.
63.Shi, J., Zhang, G., Sha, J., 2011b. Optimal production planning for a multi-product closed loop system with uncertain demand and return. Computers & Operations Research 38 (3), 641-650.
64.Shulman, J.D., Coughlan, A.T., Savaskan, C.R., 2010. Optimal reverse channel structure for consumer product returns. Marketing Science 29 (6), 1071-1085.
65.Srivastava, S.K., 2007. Green supply-chain management: a state-of-the-art literature review. International Journal of Management Reviews 9 (1), 53-80.
66.Teunter, R., van der Laan, E., Vlachos, D., 2004. Inventory strategies for systems with fast remanufacturing. Journal of the Operational Research Society 55 (5), 475-484.
67.Toktay, L.B., Wein, L.M., Zenios, S.A., 2000. Inventory management of remanufacturable products. Management Science 46 (11), 1412-1426.
68.Tsay, A.A., Nahmias, S, Agrawal, N., 1999. Modeling Supply chain contracts: A review, S Tayur, M Magazine, R Ganeshan, eds, Quantitative Models for Supply Chain Management Kluwer Academic Publishers, Dordrecht, The Netherlands, 299-336.
69.Valenta, R., 2004. Product recovery at Robert Bosch Tools, North America. Presentation at the 2004 Closed-Loop Supply Chains Workshop held at INSEAD, Fontainebleau, France.
70.Van der Laan, E., Salomon, M., Dekker, R., Wassenhove Van, L.N., 1999. Inventory control in hybrid systems with remanufacturing. Management Science 45 (5), 733-747.
71.Wang, J., Zhao, J., Wang, X., 2011. Optimum policy in hybrid manufacturing/ remanufacturing system. Computers & Industrial Engineering 60 (3), 411-419.
72.Wang, Y., Jiang, L., Shen, Z.J., 2004. Channel performance under consignment contract with revenue sharing. Management Science 50 (1), 34-47.
73.Webster, S., Mitra, S., 2007. Competitive strategy in remanufacturing and the impact of take-back laws. Journal of Operations Management 25 (6), 1123-1140.
74.Yang, G.F., Wang, Z.P., Li, X.Q., 2009. The optimization of the closed-loop supply chain network. Transportation Research Part E 45 (1), 16-28.
75.Zikopoulos, C., Tagaras, G., 2008. On the attractiveness of sorting before disassembly in a remanufacturing facility. IIE Transactions 40 (3), 313-323.

Advisor	• Jen-Ming Chen(陳振明)
Files	• 984406003.pdf approve in 1 year
Date of Submission	2012-06-25

[Back to Results | New Search]

Browse | Search All Available ETDs