

CHAPTER 5

CONCLUDING REMARKS

Three empirical studies are presented in chapters 2 through 4 on the basis of the data of Taiwan's midstream petrochemical industries. The empirical results in chapter 2 confirm the causalities derived from the theoretical model, and demonstrate that there do exist simultaneous relationships among domestic firms' *PCM*, domestic concentration, import and export shares in Taiwan's midstream petrochemical industries. Specifically, domestic concentration affects domestic firms' *PCM* positively while import share, export share, import concentration and country concentration of exports affect domestic firms' *PCM* negatively. Domestic firms' *PCM*, import share and import concentration affect domestic concentration positively while market size affects domestic concentration negatively. Domestic concentration and cost differential affect import share positively while domestic firms' *PCM*, export share, import concentration and capacity utilization affect import share negatively. Domestic firms' *PCM*, import share and import concentration affect export share negatively. In addition, the results also imply domestic firms seem to be in a situation of collusion during the period of 1989-1997, and the collusive behavior probably has originated from their subsidiary or old employer-employee relationship. In chapter 3, the regression results confirm the causalities derived from the theoretical model, and demonstrate that there do exist simultaneous relationships among domestic firms' *PCM*, domestic concentration and the openness to trade in Taiwan's midstream petrochemical industries. Specifically, domestic concentration affects domestic firms' *PCM* positively while openness and import concentration affect domestic firms' *PCM* negatively. Domestic firms' *PCM*, openness, import share, import concentration and capacity utilization affect domestic concentration positively while market size affects domestic concentration negatively. Domestic concentration and import share affect openness positively while domestic firms' *PCM* and import concentration affect openness negatively. Based on the derived causalities, the above empirical results imply that the interactive relationship among domestic firms as well as that between domestic and foreign firms might both be collusive during the period of 1989-1997, and the collusive behavior probably has originated from their subsidiary or old employer-employee relationship. In chapter 4, we have found that firms from the two largest importing nations of midstream petrochemicals in Taiwan, the US and Japan, have exercised market power in Taiwan market during our sample period. However, our data seems to suggest that other

causes of incomplete pass-through were important for Japan and US imports. Observing the differences between Japanese and the US import behavior, cost increases for Japanese firms have a lower effect than US firms on equilibrium price, that could be explained by the desire of Japanese manufacturing firms to build up their shares in Taiwan during the period. In addition, the result indicates that the Japanese firms in Taiwan have more market power than US firms. According to theory model, this result also implies that elasticity of exchange rate pass-through of Japanese firms is smaller than the US firms'.

In the past two decades, Taiwan's downstream petrochemical industries have moved to China to seek cheaper labor and larger market demand. The international linkage between China and Taiwan significantly affects those midstream petrochemical industries which have remained in Taiwan. Therefore, for a small, open economy such as Taiwan's, investigating the influence of international trade upon domestic profitability and structure turns out to be an important work. Based on our empirical results, possible policy implications emerge directly from our empirical results. First, as the empirical results demonstrated, import concentration not only reduces domestic firms' profitability but also increases domestic concentration. Its impacts should be carefully taken into account while the government formulates industrial and competitive policies since liberalization policy is inevitable. Second, appropriate policy tools might be adopted by the government to encourage domestic firms to diversify foreign markets since such tools can improve domestic firms' profitability. Third, collusion among domestic firms as well as that between domestic firms and foreign firms should be considered as an important factor in formulating industrial and trade policies because it is highly suspected that collusion does take place. Forth, although trade liberalization is inevitable for developing countries, but, from our empirical results, the openness to trade not only reduces firms' profitability but also raises the industry concentration, and the firm's profitability and concentration also will affect the openness to trade significantly in vice versa. Therefore, the benefit and cost of openness to international trade should be taken into consideration more thoroughly. Nevertheless, in chapter 2 and 3, the conjectural elasticity among domestic firms or that between domestic and foreign firms has not been incorporated as one of the explanatory variables in the empirical studies because of the technical problems in estimating it. In chapter 4, the product-specific cost data of foreign firms is not available, therefore, they are proxied

by product- and country-specific import unit value for this study. These problems have to be overcome in the future.