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Trade, Industrial Structure, and Brand

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1 Introduction

In the past few decades, many firms in developed countries have outsourced their production activities to newly industrialized countries (NICs). From the NICs' point of view, one of the main concerns has become how to take advantage of a higher profit margin by marketing the own brand

Taking the information technology industries as an example, in 2006, the five major Taiwanese laptop subcontractors, Quanta Computer, Compal Electronics, Wistron, Inventec, and Asustek Computer, accounted for 85.5% of world output.[3] They produced the laptops for Dell, Hewlett Packard, Toshiba, Apple, Sony, Acer, Lenovo, and many other branding firms. Hon Hai Precision Industry (also named Foxconn Technology Group) produces iPods and iPhones for Apple.[4] Hon Hai Precision Industry also produces cell phones, networking equipment, and game consoles for its customers, including Dell, Hewlett Packard, Nokia, Cisco, Sony, Nintendo, and Motorola. (BusinessWeek, 2006; 2007).

Table 1-1 and Table 1-2 confirm this striking pattern. That is, although Taiwan's IT industries have distinctly high world market shares and some of them even dominate the world markets, many firms still choose not to be OBM firms. Why is this the case? Very few studies until now have discussed the possibility for a subcontractor to establish its own brand. Most research has considered the

Korea can be viewed as a single multi-product firm because developing a better reputation on one product would lead to an increase in the demand for all its products. Therefore, the chaebol has more incentive to produce high-quality goods. Their empirical evidence also confirms this hypothesis.

Although their research focuses on the quality of the product rather than the brand, it seems to suggest that the "stand-alone" subcontractors in developing countries or other NICs might have fewer incentives to establish their own brands in the final goods markets. However, the interaction between the foreign outsourcing firm (which is a branding firm) and the domestic subcontractor is beyond the scope of their research.

Another study that examines the feasibility for the subcontractors to upgrade by branding is Chu (2006). She discusses how the second-movers can continue to upgrade once the growth of subcontracting opportunities has been gradually exhausted. She finds that without strong and long-term support from the government, such as South Korea’s government support of the chaebol, most Taiwanese subcontractors will still choose to be the OEM or ODM firms.

Chu's analyses are based on Amsden and Chu's second-mover theory (Amsden and Chu, 2003) and Penrose's resource-based approach (Penrose, 1959/1995). Chu emphasizes the role of history and accumulated organizational ability in deciding the subcontractor's strategies. This paper, on the other hand, will take a different method. It analyzes the subcontractor's strategies using a two-stage game to answer the following question: Under what circumstances would a Taiwanese subcontractor choose to establish its own brand in the final goods market? This approach could complement Chu’s model.

To answer the above question, this paper builds a model with both vertical and horizontal differentiation of brand values. Two players, the US branding firm U and the Taiwanese OEM firm T, play a two-stage game in the US market. In the first stage, they play a non-cooperative game in a given environment. The purpose of this stage is to figure out the non-cooperative Nash equilibrium outcome. No production activity will be carried out

equilibrium is just the combination of each firm's outside option). The two firms now bargain over the total industrial profit when they cooperate. In this paper, cooperation means U outsources T to produce and T is the subcontractor of U. The two-stage game presented here is similar in spirit to the biform model presented by Brandenburger and Stuart (2007).

If the bargain succeeds, the two firms cooperate, i.e., the US branding firm decides to outsource production to the Taiwanese OEM firm and the latter also agrees to be the subcontractor. They share the total industrial profit. However, if the bargain fails, then each firm must exercise its outside option, i.e., each firm will either be the branding firm that produces on its own or exit the market.

The result shows that without horizontal differentiation, the Taiwanese OEM firm will become a branding firm only if it is subsidized to do so. However, if the Taiwanese OEM firm can horizontally differentiate its brand, the sunk cost to brand is not too large, and the brand value for the new Taiwanese branding firm is high enough, it might choose to brand and enter the final goods market even without any subsidy.

The intuition behind this result is that without horizontal differentiation, monopoly profit is always the highest. Furthermore, the higher brand value from the incumbent outsourcing firm and the lower production cost from the subcontractor should be the best combination to achieve the highest total industrial profit. Thus, the bargain will succeed in this case.

Table 1-1 Percentage of OEM & ODM Exports by Taiwan's IT Industries

Unit: %	1993	1995	1997	1998	1999	2000	2001	2002

2 Model

This paper builds a model such that the brands are both vertically and horizontally differentiated.[8] There are two players, the US branding firm U and the Taiwanese OEM firm T. U can choose to be a

utility will be:

□ □ □□ □ □

Unlike the

Note that when $2 - 1 < \frac{}{} < 1$, the market is not fully occupied. When $2 - 1 < \frac{}{} < 1$, the market is fully occupied. The profit function becomes:

$$\begin{cases} \\ \\ \\ \end{cases} \quad \begin{cases} \\ \\ \\ \end{cases}$$

The pricing equation and the profit function can be derived accordingly:

$$\begin{cases} \\ \\ \\ \end{cases}$$

(7) means that the horizontal coordinate of the intersection must lie between and , (8) says the vertical coordinate of the intersection must be less than or equal to zero.

Case 4: The two firms enter in different markets but only U is the monopolist

When (8) in Case 3 is not true, the market cannot accommodate two firms both acting as if they were monopolists in different markets. Let us consider the case that U, the incumbent, does not occupy the whole market as a monopoly (if U has already occupied the whole market in the first place, a duopolistic competition will be triggered

U's pricing strategy can be found by plugging (18) into its maximization problem:[12]

[illegible] (19)

T's pricing strategy is determined by plugging (19) back into (18):

[illegible] (20)

U's and T's profit functions can be derived accordingly as:

[illegible] (21)

[illegible]

Case 7: The two firms are duopolists and the constraint $\square\square\square\square \mathbf{1}$ is binding

If the nonbinding solution $\square^{\square}_{\square\square}$ and $\square^{\square}_{\square\square}$ makes $\square\square\square\square \mathbf{1}$ in (13), then $\square\square\square\square \mathbf{1}$ is binding.

shown in the extensive form representations in Figure 2-3. However, given the parameters □□□, □□, □□, □□, □□, □□, □□, only one of them holds at a time. If the market can accommodate two monopolists, the first stage game will be Case a. If the market cannot accommodate two monopolists but T still enters to maximize its profit, it chooses whether or not to compete with U. If T chooses not to compete with U, the first stage game becomes Case b. If T decides to compete with U, exactly one of Case c through f holds since T's decision triggers a duopolistic competition. If after both firms enter, Case 5 (Nonbinding duopolistic competition) is the outcome, the first stage game becomes Case c. Appendix A-03 shows that at most only one constraint will be binding. If □ □ □ is binding, the first stage game becomes Case d. If □ □ □ □ **1** is binding, it becomes Case e. Finally, if □ □ **0** is binding, it becomes Case f.

Let us first consider Case a. Note that □□□ □ **0** always holds since □□ □ □□ by assumption. Now, if □□□ □ **0**, the Nash equilibrium is □□□□□□, □□□□□□ since both firms' dominant strategies are to enter. If □□□ □ **0**, U's dominant strategy is to enter while that for T is not to enter. The outcome becomes □□□□□□, □□□ □□□□□□. Similarly, we can prove that in Case b, if □□□□ □ **0**, the outcome is □□□□□□, □□□□□□ while if □□□□ □ **0**, it becomes □□□□□□, □□□ □□□□□□. In Case c, if □□□□ □ **0**, the outcome is □□□□□□, □□□□□□ while if □□□□ □ **0**, it becomes □□□□□□, □□□ □□□□□□. In Case d, the outcome will be □□□□□□, □□□ □□□□□□ since T is the follower and its profit will be non-positive if it enters. In Case e, when □□□□ □ **0**, the outcome ends up to be □□□□ □□□□□□, □□□□□□. When □□□□ □ **0**, it becomes □□□□□□, □□□ □□□□□□. In Case f, if □□□□ □ **0** and □□□□ □ **0**, the outcome is □□□□□□, □□□□□□. If □□□□ □ **0** and □□□□ □ **0**, it becomes □□□□□□, □□□ □□□□□□. If □□□□ □ **0** and □□□□ □ **0**, the outcome is □□□□ □□□□□□, □□□□□□. If □□□□ □ **0** and □□□□ □ **0**, since U, the leader, will enter the market and earn the monopoly profit in the first place, the outcome is □□□□□□, □□□ □□□□□□. Q.E.D.

2.3 The Second Stage Cooperative Game

In the second stage, both firms play the Nash bargaining game on the total industrial profit □□. If

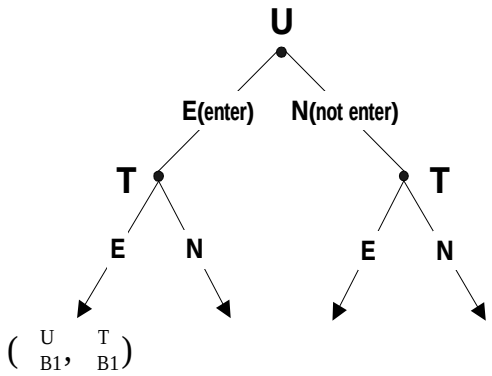
the bargain succeeds, then U and T cooperate such that [redacted]

OEM product with U's brand can be expressed as: [redacted]

$$[illegible] = \begin{cases} 0, & [illegible] \\ [illegible](1 - [illegible])^{[illegible]}, & [illegible] \\ [illegible](1 - [illegible])^{[illegible]}, & [illegible] \end{cases}$$ [redacted]

Note that when $[illegible] = [illegible], [illegible] = 1$ [redacted]

Figure 2-3 The Extensive Form Representation of the First-Stage Game[18]



3 Analysis

the total industrial profit under the cooperation, i.e., π_{UT}^{U}, since π_{UT}^{U} can be regarded as the monopoly profit under the combination of θ^{U} and θ^{T}. Thus, we have $\pi_{UT}^{U} \geq \pi_{UT}^{U} + \pi_{UT}^{T}$. ($\pi_{UT}^{U}$ and π_{UT}^{T} denote U's and T's collusive profits when $\theta^{U} = \theta^{U}$, $\theta^{T} = \theta^{T}$, and $\pi_{UT}^{T} = 0$). On the contrary, when $\theta^{U} = \theta^{U}$, $\theta^{T} = \theta^{T}$, $\pi_{UT}^{T} = 0$, and the two firms do engage in price competition, we must have $\pi_{UT}^{U} < \pi_{UT}^{U}$ and $\pi_{UT}^{T} < \pi_{UT}^{T}$. Thus, $\pi_{UT}^{U} + \pi_{UT}^{T} < \pi_{UT}^{U} + \pi_{UT}^{T}$. Q.E.D.

Proposition 3.1.1 shows that the higher brand value from U and the lower production cost from T is the best combination to attain the highest total industrial profit. This implies that if T's brand cannot be horizontally differentiated (or, equivalently, if T's OBM product cannot be horizontally differentiated), it will always choose to cooperate with U, i.e., be the subcontractor of U. It is straightforward to show that T must be "over-subsidized" to become an OBM firm in this case.[19]

Proposition 3.1.2

For the two-firm Nash bargaining problem with both vertically and horizontally differentiated brands, suppose U and T locate at $= 1$ and $$, respectively $(0 < < 1)$, $\theta^{U} = \theta^{U}$, $\theta^{T} = \theta^{T}$, and $\pi_{UT}^{T} = 0$. If the Nash equilibrium in the first stage game is that only one firm enters, then $\pi_{UT}^{U} \geq \pi_{UT}^{U} + \pi_{UT}^{T}$ always holds, i.e., the bargain always succeeds, or equivalently, if the bargain fails, then the Nash equilibrium in the first stage game must be that both firms enter.

Proof:

Proposition 3.1.3

For the two-firm Nash bargaining problem with both vertically and horizontally differentiated brands such that U, T locate at □ □ **1** and □, respectively □□ □ **0**□, □□ □ □□, □□ □ □□, and □□□ □ **0**, if □□ is high enough and □□□ is low enough, then □□□ □ □□□ □ □□□ does not always hold, i.e., the bargain might fail.

The proof is in Appendix A-04. It shows that T might become an OBM firm when its brand value gets higher and the sunk cost to brand gets lower.

effect. However, when $\alpha \to \infty$, T will not choose to be an OBM firm since the relative distance effect dominates. These cases will be demonstrated in the following simulations.

Figure 3-1 considers the case with $\alpha = 0$. The Nash equilibrium of the first stage game is represented by different colors while the final outcome of the bargain is determined by the number in the corresponding cell, which represents the value for $\pi_T^B + \pi_T^{OBM} + \pi_T^{OBM}$. Thus, a positive number means a successful bargain while a negative one means a failed bargain. Let us first consider the outside options. Note that when $\alpha = 0$, if both firms do enter the final goods market, they are two monopolists in two separate markets. The simulation shows that the higher sunk cost in branding (ϕ_T^B) discourages T from entering the market. On the other hand, if T's brand value (θ^T) gets higher, it is more likely to be an OBM firm. Second, for the final outcome of the bargain, the simulation shows that the higher ϕ_T^B favors a successful bargain while the higher θ^T discourages the cooperation (thus encourages T to brand). The simulation also demonstrates Proposition 3.1.2, i.e., if T's outside option is not to be an OBM firm, the bargain always succeeds.

Figure 3-2 presents the simulation with $\alpha = 1$. For both the outside options and the final outcome, the patterns are similar to those with $\alpha = 0$. For the outside options, given a wide range of ϕ_T^B, when θ^T is small, the Nash equilibrium of the first stage game is such that U is the monopolist and T does not enter. When θ^T is moderate, the equilibrium becomes a binding duopoly. Finally, when θ^T is large enough, the equilibrium will be "U is the monopolist since T enters but does not fight". Note that when θ^T is smaller, T has to lower its price to attract the consumer, which means a duopolistic competition is more likely to be triggered. For the final outcome, the bargain is more likely to fail compared to that with $\alpha = 0$. This suggests that the intensity effect dominates.

Figure 3-3 presents the simulation with $\alpha = 5$. The evolution of the outside options is similar to the previous simulations. Note that larger α makes both the intensity effect and the relative distance effect stronger. The intensity effect pushes both $\alpha = \alpha\theta^T + \pi_T^{OBM}$ and $\alpha = 2\alpha - 1 = \alpha\theta^T + \pi_T^{OBM}$ upward. If α is large enough, each firm will occupy the whole market when it enters alone. This

suggests that larger α is more likely to trigger the duopolistic competition if T decides to enter.[21] Thus, the relative distance effect gradually dominates since the relative horizontal differentiation between the two products diminishes. Note that the valuation of U's product is uniformly distributed in $[\theta_U - \theta_T, \theta_U + 1 - \theta_T]$. When α is large enough, the difference between $\theta_U - \theta_T$ and $\theta_U + 1 - \theta_T$, which is just θ_T, becomes relatively small compared to α. This means that the consumer with the lowest valuation of U's product still values it rather highly. Now, if $\theta_U - \theta_T > \alpha - \theta_U + 1 - \theta_T$, U's product strictly dominates T's product for every consumer. Thus, the Nash equilibrium in the first stage game will be $(\text{Collusion}, \text{Collusion})$. On the other hand, if $\theta_T > \alpha - \theta_T$ but $\theta_T < \alpha - \theta_T$ so that T's product is not strictly dominated and the Nash equilibrium in the first stage game results in a duopoly, the relatively smaller horizontal differentiation as α gets larger means that the price competition between the two OBM products becomes fiercer. This implies that cooperating and sharing the monopoly profit might be a better choice for both parties. This is also demonstrated in Figure 3-3.

[21] It can be verified that the intersectio

Figure 3-1 □□ vs □□ (□ □ □) □□□, □□, □□, □□, □□, □□, □□ □ □20, 1.9~19.9, 2, 1, 1, 0~18, 0□

	□□	1.9	2.8	3.7	4.6	5.5	6.4	7.3	8.2	9.1	10.0	10.9	11.8	12.7	13.6	14.5	15.4	16.3	17.2	18.1	19.0	19.9
□□	□																					
0.0	□	□□□	□□□	□□□																		

4 Empirical Evidence

Proposition 3.1.1 argues that if the brands are onl

To test Proposition 3.1.3, this paper derives a prediction of firms' branding statuses in different markets from that proposition, then it investigates the branding statuses of Taiwanese subcontractors in three different markets: 1) Taiwan; 2) China or developing countries; and 3) developed countries.

To derive a testable hypothesis, besides simply considering the U.S. market as in Section 2, let us consider the scenario that U is the incumbent branding firm in the aforementioned three markets, while T decides whether it should brand in these markets.

Let us denote T's brand values in the aforementioned three markets by $\square_{\square}^{\square}$, $\square_{\square}^{\square}$, and $\square_{\square}^{\square}$, respectively, and denote the corresponding sunk costs to brand by $\square_{\square\square}^{\square}$, $\square_{\square\square}^{\square}$, and $\square_{\square\square}^{\square}$, respectively. Since for Taiwanese firms, it would be much easier to promote their products domestically, let us assume that $\square_{\square}^{\square} \square \square_{\square}^{\square} \square \square_{\square}^{\square}$. Furthermore, since the sunk cost to brand is likely to positively correlate with the market size, let us assume that $\square_{\square\square}^{\square} \square \square_{\square\square}^{\square} \square \square_{\square\square}^{\square}$. Finally, let us assume that T's brand is both vertically and horizontally differentiated from U's brand in all markets. Under these assumptions, this paper proposes the following hypothesis:

Hypothesis 4.2.1

Taiwanese firms are more likely to brand domestically. They would have a harder time extending their brands to China or other developing countries, and they would have the most difficulty branding in developed countries.

To test Hypothesis 4.2.1, this paper takes the Taiwanese listed companies in the "3C" industries (Computer, Communication, and Consumer Electronics) as an example. Based on the roster compiled by the Taiwan Economic Journal, the author collects and expands the dataset from each firm's website and the relevant news reports. Since the main focus is on firms that produce the final goods, those producing the intermediate goods or targeting business users will not be included.

to the factor “market”; and 2) the variation due to the factor “firm”. For simplicity, let us assume that there is no interaction between these two factors.[29] The result shown in Table 4-2 provides clear evidence to reject the null at a 1% significance level.

Next, this paper tests for those firms which have already branded in Taiwan, are they more likely to brand in China or developing countries than to brand in developed countries? Let us denote the proportions of the domestic branding firms that brand in China/developing countries and developed countries by $\square_{\square|\square\square}$ and $\square_{\square|\square\square}$, respectively. The hypothesis test can be expressed as:

$$\mathbf{H}_{\square}: \square_{\square|\square\square} \square \square_{\square|\square\square}$$

$$\mathbf{H}_{\square}: \square_{\square|\square\square} \square \square_{\square|\square\square}.$$

Table 4-3 shows that for the 52 firms that have branded domestically, 44 firms also brand in China or developing countries, which account for 84.62% of the domestic OBM firms, while only 31 brand in developed countries, which account for merely 59.62% of the domestic OBM firms. It also shows the result from the matched pair t-test. Since the p-value is less than 1%, the result provides strong evidence which demonstrates that Taiwanese domestic branding firms are more likely to brand in China or developing countries rather than in developed countries.

Finally, to find the evidence that sufficiently supports the argument of Hypothesis 4.2.1, i.e., $\square_{\square}$

size the joint test.[31] Note that to reject $\mathbf{H}_{\square}$, one should be able to reject the null hypotheses in the two

Table 4-2 Two-Way ANOVA for Firms' Branding Statuses in Different Markets

Source	SS	df	MS	F-statistic	p-value
Markets	2.44	2	1.22	19.23	< 0.01
Firms	54.56	91	0.60	9.44	< 0.01

5 Conclusion

This paper analyzes the interaction between a foreign outsourcing firm and a domestic subcontractor. It demonstrates that if the brands are only vertically differentiated, the subcontractor with the lower brand value will choose to cooperate with the outsourcing firm.

However, if 1) the brands are also horizontally differentiated; 2) the sunk cost to brand is low; and 3) the brand value for the potential branding firm is high enough, the subcontractor might choose to

Another extension would be to build a model where the brand value of the new entrant depends on its branding expenditure. Furthermore, one can establish a dynamic model that considers that the brand value on the product can become even higher than that for the incumbent in the long run. Consequently, the subcontractor's problem would be to maximize the present value of the profit. However, even if branding is profitable, the sunk cost to brand could be too high for the subcontractor to afford at the beginning if there is no way to finance the project. In this case, outside support (possibly subsidies) or an efficient financial market would be crucial.

Appendix

A-01 Profit Maximization for the Nonbinding Duopoly

The profit maximization problems are:

$\pi_{UT} = 0$ will be binding as being discussed before. The solution can be found by solving the two binding constraints simultaneously. Plugging T's reaction function (the first constraint) into the second binding constraint, we have:

$$\pi_{UT} = \frac{(a-c+\theta)^2}{9} - 2\left(\frac{a-c-2\theta}{3}\right)^2 = 0$$

Thus, the pricing equations for U and T are:

$$p_U = \frac{a+2c+\theta}{3}$$

$$p_T = \frac{a+c-2\theta}{3}$$

As a result, we have:

$$\pi_U = \pi_{UT} = \frac{(a+2c+\theta)^2}{9} = \frac{(a+c-2\theta)^2}{9} = \frac{(a-c+\theta)^2}{9}$$

$$\frac{(a+2c+\theta)(a+c-2\theta)}{9} = \frac{(a-c+\theta)(a+c-2\theta)}{9}$$

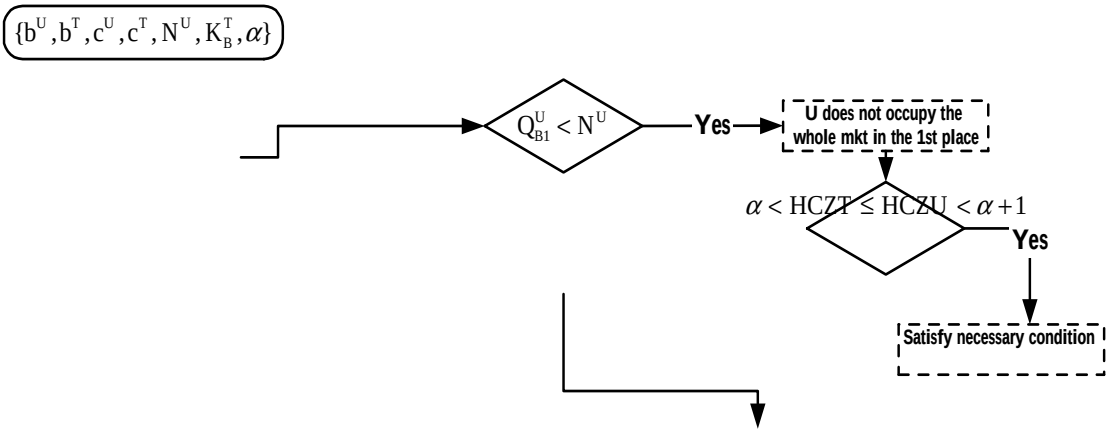
$$\pi_U = \pi_T = \frac{(a+2c+\theta)^2}{9} = \frac{(a+c-2\theta)^2}{9} = \frac{(a+2c+\theta)(a+c-2\theta)}{9}$$

A-04 Proof for Proposition 3.1.3

For simplicity, let us consider the case that when the two firms cooperate, the market is not fully

[illegible] $=$ [illegible], and [illegible] $=$ [illegible], the bargain fails if and only if [illegible].[37] This is equivalent to [illegible]. From (29) and (31), [illegible] and [illegible]. Plugging these into [illegible] and [illegible], we have [illegible] and [illegible] 0. The condition [illegible] 1 is equivalent to [illegible] 2, [illegible] 1. Taking [illegible] 1 for example and plugging [illegible] into [illegible], [illegible], and [illegible], we have [illegible], [illegible], and [illegible]. The duopoly with [illegible] 0 binding holds. Furthermore, under the cooperation, the market will not be fully occupied since [illegible] 1, [illegible] 1. Finally, from the

A-05 The Flow Chart of the Program



A-06 Branding Statuses of Taiwanese Firms in 3-C Industries

Laptop Manufacturers					
Number of firms = 15	Share of firm's total sale	Share of ODM (OEM) output	Taiwan	China/Developing countries	Developed countries
ACER	>39%	0%	▲	▲	▲
Arima Computer	86%	100%			
ASUS	32%	70%	▲	▲	▲
BenQ			▲	▲	▲
CLEVO	95%		▲		
Compal Electronics[38]	70%(2006:Q1-2)	>95%	▲		
EliteGroup	30%	>50%	▲		
FIC Global, Inc.[39]		75%	▲	▲	
GIGABYTE	<33%	0%	▲	▲	▲
Inventec	70%	100%			
Micro-Star International	12%	0%	▲	▲	
MiTAC Technology	95%	100%			
Quanta Computer	87%	100%			
Twinhead	87%		▲	▲	▲
Wistron Corporation	82%	100%			
			10	7	5
Desktop Manufacturers					
Number of firms = 8	Share of firm's total sale	Share of ODM (OEM) output	Taiwan	China/Developing countries	Developed countries
ACER	<61%	0%	▲	▲	▲
ASUS			▲	▲	▲
First International Computer[40]			▲		
Foxconn		100%			
GIGABYTE	19.62%	88.24%	▲		
MiTAC International[41]	30%	>50%	▲	▲	
Tatung	<45%	100%			
Wistron Corporation	4%	100%			
			5	3	2

▲= Branding

[38] In 2007, Quanta Computer and Compal Electronics are the world's largest and second largest OEM/ODM laptop manufacturers, respeM op5op5op5op5op5o?Uzu>U n u q uAW;;;;;U?U?UAW;;;;;U?U?U c m M

A-06 Branding Statuses of Taiwanese Firms in 3-C Industries (Continued)

Monitors (for Desktop; TV; Other purposes)					
Number of firms = 14	Share of firm's total sale	Share of ODM (OEM) output	Taiwan	China/Developing countries	Developed countries
AG Neovo	96%	0%	▲	▲	▲
AUO	99%	100%			
Chunghwa Picture Tubes	99%	100%			
Compal Electronics	8%	100%			
Foxlink image Tech.					
Hanton	54%		▲	▲	▲
Innolux	83%	100%			
JEAN	67%		▲	▲	
Liteon	49%	100%			
MAG	88%	35%(2001)	▲	▲	▲
Microtek	18%	>0%	▲	▲	▲
Qisda	66%	100%			
SlimAge	69%	100%			
Yuan High-Tech					
			5	5	4

Scanner and Multi-function Printer (MFP) 68HUUUU2nWn

A-06 Branding Statuses of Taiwanese Firms in 3-C Industries (Continued)

Cell Phone Manufacturers					
Number of firms = 12	Share of firm's total sale	Share of ODM (OEM) output	Taiwan	China/Developing countries	Developed countries
Arima Communications	90%	100%			
ASUS	<10%		▲	▲	▲
BenQ	4%		▲	▲	
Compal Electronics	22%(2006:Q1-2)	100%			
DBTEL	7%		▲		
Foxconn		100%			
GIGABYTE Communications	100%		▲	▲	
HTC	95%	30%	▲	▲	▲
Inventec (OKWAP)	98%	85%	▲	▲	
Qisda	<2%	100%			
Quanta Computer	<12%	100%			
Wistron NeWeb Corp	28%	>50%	▲	▲	
			7	6	2

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