THE AUTOMOTIVE INDUSTRY IN VIETNAM: PROSPECTS FOR DEVELOPMENT IN A GLOBALIZING ECONOMY

—Appendix IV of the Industrial Competitiveness Review—

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1. INTRODUCTION

Prior to 1991, the domestic automotive industry in Vietnam consisted mainly of Auto Hoa Binh, a state-run manufacturer of military vehicles that first opened in Hanoi in 1951 during the war with the French. Some parts were supplied by other state-run enterprises, located mostly in the Hanoi area, and others were imported. The tiny demand for passenger vehicles in Vietnam was met through the import of fully assembled Soviet-built sedans. Other state-run companies manufactured agricultural vehicles, freight trucks, and construction vehicles, but these companies struggled to compete with imports from the Soviet Union and China, and more recently with used trucks from Korea. A number of US military vehicles and civilian passenger cars confiscated in 1975 are in use even today, mostly in the south and central parts of the country.

In 1991 the Vietnamese automotive industry began to change dramatically. Auto Hoa Binh formed a joint-venture partnership, called Vietnam Motors Corp. (VMC), with Colombian Motors (Philippines) and Nichmen Corp. (Japan), two companies with a pre-existing joint-venture to assemble passenger vehicle kits in the Philippines under license from various automakers. Today, VMC assembles passenger vehicle kits supplied by Kia (Korea), Mazda (Japan), BMW (Germany), and Subaru (Japan). In 1992, VMC was joined by Mekong Corp., another joint-venture—this one backed mostly by financial capital from Korea—to assemble sport-utility vehicle kits supplied by Mitsubishi (Japan), and a few passenger car kits supplied by Fiat (Italy). Although the Vietnamese market for motor vehicles was and is very small, these two assemblers—because they manufactured different vehicle types and had little other competition—were able to remain fairly profitable (e.g between 1991 and 1996 VMC earned about $7MUSD in profits).

In 1995 the Vietnamese government, seeking to both decrease consumer prices and build up the automotive industry, issued three additional licenses for automotive assembly joint-ventures. By 1996 Mitsubishi (Japan), Daewoo (Korea), and Daimler Benz (Germany) had opened joint-venture enterprises in HCMC and Hanoi to assemble passenger vehicles, light utility trucks, and passenger vans. After these plants had been established, the Vietnamese Government shocked the industry by issuing eight more licenses. By the end of 1997 Isuzu, Hino, Daihatsu, Toyota (all from Japan and the latter three from the Toyota Group of companies), and Ford (USA) had plants in operation, bringing the total number of vehicle assembly plants in Vietnam to eleven. By early 1998, in the face of stiff competition and sagging demand, Nissan (Japan) put the construction of its assembly plant in Da Nang on hold, and Peugeot (France) and Chrysler (USA) had chosen not to act on their license agreements.

While by any measure this surge of new activity can be seen as a truly remarkable turn of events, it is less obvious that a viable automotive industry is emerging or that the Vietnamese economy is gaining any substantial benefit. This report provides an overview of the Vietnamese industry, probes the motivations behind the recent wave of assembly plant investments, and offers a critique state policy toward the automotive industry. Where does Vietnam fit within the global automotive industry? How viable is the automotive industry in Vietnam and what are the prospects for future development? What steps should the Vietnamese government take to spur the industry's continued expansion. The paper is organized as follows. Section Two provides a brief overview of the current state of the automotive industry in Vietnam. Section Three provides a typology of that reveals the general characteristics of the production locations that automakers must choose among. Section Four discusses the macro-trends that are reshaping the world automotive industry, especially globalization. Section Five situates the Vietnamese automotive industry within the ASEAN and world contexts. Section Six discusses Vietnamese government policy toward the automotive industry. Section Seven offers policy recommendations for building a more competitive Vietnamese automotive industry.

2. THE CURRENT CONDITION OF THE VIETNAMESE AUTOMOTIVE INDUSTRY

2.1 Snapshot of the Vietnamese Automotive Industry in 1998

Eleven automobile companies are currently assembling vehicles in Vietnam, including firms based in all four major auto-producing locations, Europe, the United States, Japan, and Korea. Nine of the firms currently active in Vietnam are what this report will refer to as "automakers,"—firms that design, develop, manufacture, and sell highway-grade motor vehicles—while the remaining two firms are what will be referred to as "license assemblers," companies that assemble vehicles from automaker-supplied kits of parts to sell locally under license, sometimes affixing their own brand names (e.g. Mekong). There are five Japanese automakers currently in production (Daihatsu, Hino, Isuzu, Mitsubishi, and Toyota), one Korean automaker (Daewoo), one Korean-backed license assembler (Mekong), one Philippine-backed license assembler (VMC), one German automaker (Daimler-Benz), and one American automaker (Ford). Table 1 lists the vehicle assemblers in Vietnam, showing company type, start date, capacity, and which metropole of Vietnam the plant is located in. It is important to note that each firm has a Vietnamese partner, usually a state enterprise from the motor vehicle or agricultural implement sector of the Vietnamese economy.

Table 1. Automotive Assembly Plants In Vietnam, 1998

Company	Home Country	Company Type	Start Date	Capacity	VN Location
Daewoo	Korea	Automaker	1995	10,500	Hanoi
Daihatsu	Japan	Automaker	1996	2,000	Hanoi
Daimler Benz	Germany	Automaker	1996	10,000	HCMC
Ford/Mazda	USA	Automaker	1997	14,000	Hanoi
Hino Motors	Japan	Automaker	1997	1,760	Hanoi
Isuzu	Japan	Automaker	1997	10,000	HCMC
Mekong	Korea	License Asmblr.	1992	5,000	HCMC
Mitsubishi	Japan	Automaker	1995	5,000	HCMC
Nissan*	Japan	Automaker	1998	1,000	Da Nang
Toyota	Japan	Automaker	1996	5,000	Hanoi
VMC	Vietnam	License Asmblr.	1991	20,000	Hanoi

* Nissan had only broken ground in April, 1998.

Sources: April 1998 author fieldwork and Vietnam Economic Times, October, 1997.

There are a wide range of vehicle models being assembled in Vietnam, including four small cars, three mid-sized cars, two luxury-sports cars, five 15-20 passenger vans, three four-wheel-drive sport-utility vehicles, six light- to medium-duty utility trucks, and two medium-duty freight trucks. The models are listed by assembler in Table 2. The only gaps in Vietnam's current domestically-assembled product mix are micro cars, large cars, small vans, and pick-up trucks. Given Vietnam's poor roads and low consumer incomes, it is understandable why no automotive company is assembling micro cars or large cars, but the absence of small van and pick-up truck models is less understandable, particularly since these are the most popular models in other ASEAN countries, such as Thailand. However, in can be easily said that Vietnam's 26 domestically assembled automotive models provide enough variety to keep competition and consumer choice high.

Table 2.1. Models Assembled in Vietnam, 1998

Company	micro car	small car	midsize car	large car	station wagon	luxury sport	small van	large van	sport utility	pkup truck	utility truck	freight truck	total
Daewoo		X	X					X					3
Daihatsu											X		1
Daimler Benz						X		X			X		3
Ford/Mazda								X			X		2
Hino Motors												X	1
Isuzu									X		X	X	3
Mekong		X						X	X		X		4
Mitsubishi									X		X		2
Toyota		X	X					X					3
VMC		X	X		X	X							4
total	0	4	3	0	1	2	0	5	3	0	6	2	26

Sources: April 1998 author fieldwork and Vietnam Economic Times, October, 1997.

Although the assembly plants currently employ less than 1,500 Vietnamese workers, the recent investments can be said to be providing notable benefits to Vietnam. Automakers are among the leading companies in the world in terms of revenues[1], technology, and advanced business practices . One example is work organization. Given the complexity and labor intensive nature of automobile final assembly (especially trim and finish), automakers have worked hard to find more efficient ways of using their line production workers while driving vehicle defects down. Some of the approaches that have proved successful are organizing workers into teams that are, at least in part, self-managed; rotating workers between work stations; seeking regular input from workers on how to improve production processes; and carefully tracking and reducing defects according to sophisticated quality improvement systems. Field research conducted by the

1 The value of Ford's vehicle sales in 1995 was $91B, four and one half times greater than Vietnam's GDP in the same year.

author in Vietnam in April, 1998, suggested that the majority of Vietnamese autoworkers were being exposed to some advanced work organization and quality control practices.

For the companies where data was collected, Table Two lists the number of employees in Vietnamese automotive assembly plants, the share of workers organized in teams, the share of workers who rotate jobs, the average hourly assembly worker wage (and its US purchasing power equivalent). The share of workers organized in teams is generally high, although job rotation is much less common. The opportunities for workers to learn in such leading-edge industrial settings are extremely rare in Vietnam. As foreign companies increase their presence in Vietnam, having a group of Vietnamese workers and managers experienced in high performance work practices will be essential, not only to provide personnel for foreign-owned factories, but as entrepreneurs who start businesses that conform to world standards of quality and performance.

Table 2.2. Employment, Work organization, and Wages in Vietnamese Automotive Assembly Plants

Company	Employees	% of workers in teams	% of workers who rotate jobs	Average hourly wage	US parity wage
Daewoo	170	80%	30%	$0.37	$6.71
Daihatsu	139	100%	0%	$0.51	$9.31
Daimler Benz	230	UA	UA	$0.84	$15.46
Ford/Mazda	155	100%	0%	$3.05	$55.94
Hino Motors	29	100%	0%	$0.45	$8.25
Isuzu	37	78%	30%	$1.00	$18.32
Mitsubishi	118	35%	UA	UA	UA
Toyota	338	100%	87%	$0.59	$10.81
VMC	190	UA	UA	$0.63	$11.45

April, 1998 figures from author fieldwork.

Vietnamese autoworker wages, while low by ASEAN and world standards, are in fact very high by Vietnamese standards. Autoworkers are paid, on average, greater than three times the prevailing industrial wage in Vietnam. In terms of purchasing power, Vietnamese autoworker wages on average can be said to be equivalent to $17.03USD per hour (the average would drop to $11.47 without Ford, which has taken the approach of hiring its future managers first and training them on the production line—the assumption is that production workers will be hired when volumes increase, perhaps at lower wages).

Still, the benefits mentioned here are, so far, accruing to a very small group of workers, and the overall impact on the Vietnamese economy remains extremely small. Moreover, the industry is in very poor condition because of severe overcapacity and the small, volatile Vietnamese automotive market. In 1997 approximately 21,000 vehicles were sold in Vietnam.[2] Of these, only about 25% were locally produced, leaving eleven manufacturers to battle over a share of about 5,000 unit sales. In 1998, in the midst of a deepening economic crisis in Asia, the Vietnamese automotive market has slowed more than 50%, leaving most assembly plants in Vietnam with excess inventory. Most plants have temporarily reduced or stopped production. Many workers have been laid off (for example, VMC laid off 418 (44%) of its 948 workers in early 1998), and those that remain clean plant and equipment, undergo training, and work to assemble the very few vehicles in production.

2.2 Underutilization of Plant and Equipment and the Absence of Firm Profitability

Automobile assembly is both a capital and a labor intensive process. In industries where a great deal of precision is required in the production process to insure quality, such as motor vehicles and electronics, it is impossible to manufacture modern products without substantial capital investment. Even with the smallest and simplest plants, as are the automotive assembly plants in Vietnam, a great deal of plant and equipment that must be built and installed before the first vehicle can be manufactured (e.g. plant structures, welding stations, paint shops, etc.). The cash contributions of the foreign firms to their Vietnamese joint-ventures has ranged from $8M-$50M (Vietnamese partners have typically contributed about 30% to the value of the joint venture, nearly entirely in the form of "legal" capital, especially real estate). Because automakers must maintain good rates of capital utilization to return a profit on their investments, the profitability for the automotive joint ventures in Vietnam depends on maintaining reasonably high production volumes.

Table Three shows Vietnam's automotive assembly plant capacity, output, and utilization in 1998. It is clear that capacity utilization rates in Vietnam are extremely low. The automakers visited in the field were manufacturing only a few vehicles each day. Most plant and equipment lay idle, many workers had been laid off or had had their working hours reduced. As a rule of thumb, it is difficult for an assembly plant to be profitable when capacity utilization drops very far below 70%. With an average utilization rate of approximately 11%, and a total country utilization rate of only 8%, assembly plants in Vietnam can be assumed to be unprofitable at this time.

2 This is about the number of units that a large assembly plant would produce in one month, and the number that General Motors would produce in North America in a single day.

Table 3. Automotive Assembly Plant Capacity, Output, and Utilization in Vietnam

Company	1998 Capacity	Current Output	% Utilization
Daewoo	10,500	605	6%
Daihatsu	2,000	556	28%
Daimler Benz	10,000	359	4%
Ford/Mazda	14,000	1,000	7%
Hino Motors	1,760	50	3%
Isuzu	10,000	135	1%
Mekong	5,000	527	11%
Mitsubishi	5,000	688	14%
Nissan	1,000	NA	NA
Toyota	5,000	1,400	28%
VMC	20,000	1,347	7%
TOTAL	83,260	6,667	8%
AVERAGE	7,660	667	11%

Sources: April 1998 author fieldwork and Vietnam Economic Times, October, 1997.

2.3 The Lack of an Automotive Industry Supply-base in Vietnam

Besides low capacity utilization, automakers in Vietnam are unprofitable because the automotive supply-base is almost non-existent. During the field interviews managers said that domestic Vietnamese suppliers were "low quality, slow, and of minimal capability," and that domestic sources could not even be found for simple metal parts such as fasteners (screws and bolts). In general, only cardboard packing material was sourced locally. Only three foreign auto parts manufacturers are currently manufacturing in Vietnam. Because there are so few local suppliers, all locally-produced vehicles are assembled from kits of parts in a process that is referred to in the automotive industry as "complete knock down" (CKD) assembly. Nearly all kits come from home country plants, where the parts are taken off the assembly line and "consolidated" in shipping containers for transport to CKD assembly plants, which are quite common in emerging and transition economies such as Vietnam, the Philippines, Venezuela, Poland, and Russia. The added costs of consolidation and shipping are substantial, and are not compensated for by the low labor costs in most of the countries where CKD production is underway. In Vietnam, where low capacity utilization is cutting into automaker profitability, the extra costs associated with CKD kits drive automaker losses—and Vietnamese vehicle prices—even higher. Table Four shows the share of locally produced vehicles assembled from CKD kits; and the share of vehicle value sourced from automaker home country, ASEAN, and Vietnam.

Table 4. Share of Locally Produced Vehicle Value Sourced from Automaker Home Country, Vietnam, and ASEAN, 1998

Company	% CKD	% Home	% ASEAN	% Vietnam
Daewoo	100%	100%	0%	0%
Daihatsu	100%	60%	35%	5%
Daimler Benz	100%	100%	0%	0%
Ford/Mazda	100%	80%	20%	0%
Hino Motors	100%	100%	0%	0%
Isuzu	100%	100%	0%	2%
Mitsubishi	100%	80%	20%*	0%
Toyota	100%	98%	0%	2%
VMC	100%	100%	0%	0%

** Japan and ASEAN. Source: April 1998 author fieldwork.*

One automaker manager in Vietnam said that the cars assembled in Vietnam cost the parent company twice what they cost in the home country (because of low plant and equipment utilization rates; assembly costs were said to be five times that of the home country). Although it is clear that some of this cost is being passed on to Vietnamese consumers in the form of higher prices (e.g. a Toyota Corolla cost about $26,000 in Vietnam, but only about $14,000 in the United States), it is also likely that automaker parent companies are absorbing some of these operating losses.

The implications of the current lack of profitability in the Vietnamese automotive industry are serious. In large multi-national firms, unprofitable operations are extremely vulnerable to disinvestment, sale, and closure, especially during periods of financial distress. While the loss of a few assembly plants might well be beneficial to the Vietnam given current market conditions, the loss of too many plants could jeopardize the survival of the industry. Even if the situation remains stable and automobile production remains at the CKD level, the Vietnamese economy will continue to derive only modest benefit. Since final assembly represents only about 10% of vehicle cost, Vietnam can be said to be currently importing 90% of the value of each locally produced vehicle.

Given the current state of the automotive industry in Vietnam, the goals of government policy should be clear: to increase the market for domestically-produced vehicles and to build up the automotive parts supply-base. While these goals will likely prove difficult to reach even in the medium-term, it is important that immediate steps be taken to improve the current situation. Specific policy recommendations are included in Sections Six and Seven of the report. The following sections will help to situate the Vietnamese automotive industry in its broader ASEAN and world contexts.

3. BEMS, PLEMAS, AND LEMAS: A TYPOLOGY OF PRODUCTION LOCATIONS

Before the current condition of the world automotive industry is discussed, it is necessary to develop a typology of production locations as a basis for comparison. There are too many existing and planned production locations and too many automakers for any simple generalizations to be made about the role of new production locations in the world automotive industry. Accordingly, I have segmented the types of production locations that are available to automakers into three broad categories: 1) *Large Existing Market Areas*, or LEMAs, such as the United States and Canada, Western Europe (excluding the Iberian Peninsula), Japan, and Australia; 2) *Peripheral to Large Existing Market Areas*, or PLEMAs, such as Mexico, Spain, Portugal, and Eastern Europe; and 3) *Big Emerging Markets*, or BEMs, such as China, India, Vietnam, Russia, and Brazil.

The reason that this typology helps us to understand the industry is because there are different strategic goals behind automakers locating production in each type of market. New plants in LEMA locations (often referred to as "transplants") tend to be established as a way to maintain or increase company market share in large existing markets. Because of high operating costs, LEMA locations are chosen when automakers are sure of their market, perhaps because it was previously established through successful exporting.

Table 5. The Attributes of Plants in BEMs, LEMAs, and PLEMAs.

	BEM	LEMA	PLEMA
WAGES	LOW	HIGH	LOW
CAPACITY	LOW	HIGH	HIGH
STRATEGIC INTENT	CORPORATE CITIZENSHIP	CORPORATE CITIZENSHIP, CAPABILITY SEEKING	COST CUTTING
APPLICATION OF LEAN PRINCIPLES	HIGH	LOW (EXCEPT JAPAN AND KOREA)	HIGH
DESIGN AND TECHNOLOGY DEVELOPMENT?	NO	YES	NO

The principal strategic role of PLEMA locations such as Mexico, Spain, Portugal, and East Europe are to provide automakers a proximate low-cost environment from which to supply LEMAs. While such locations do not provide the same political or consumer payoffs that LEMA locations do, they do provide trade benefits because they share, or are expected to soon share, common markets with LEMA economies (e.g. NAFTA and the EU).[3]

BEMs provide automakers with opportunities to participate in growing markets. Where market penetration is low and populations are large (e.g. China, India, and Vietnam) the potential for growth in BEMs is immense. Table 6 shows that passenger vehicle sales growth rates in BEMs, though in many cases starting from a small base, are, on average, far outpacing growth in established markets (LEMAs). The intent of locating new plants in BEMs is to establish an early market presence in high-potential emerging economies as a way to ensure participation in the automotive market as it develops.

Table 6 presents some important industry attributes according to the locational typology outlined above. It reveals some stark differences among them. First, market penetration, calculated by dividing the total country population by the number of passenger vehicles in operation, is much lower, on average, in BEMs than in LEMAs or PLEMAs. Second, automotive sector wages, on average, are very high in LEMAs and very low in BEMs, with PLEMA locations providing a middle ground that makes them attractive for exporting lower-cost vehicles to LEMAs (along with their spatial proximity). Second, as already mentioned, BEMs are growing much faster than other markets, with most of the growth coming from locally manufactured vehicles (the average annual rate of growth in production in BEMs is not far behind average annual sales growth).

Table 6. Passenger Vehicle Production Location Types: Market Penetration, Auto Sector Wages, Sales Growth, and Production Growth (note: unweighted averages under-represent large markets)

Location Type	People/Car	Weekly Wages	Average Annual Sales Growth		Avrg. Ann. Production Growth	
	1993	1991	AAGR 85-	AAGR 90-	AAGR 85-	AAGR 90-
LEMA	**2.2**	**552.98**	**-0.6%**	**-3.1%**	**0.8%**	**0.0%**
range:	1.7 to 2.6	480 .0 to 712.7	-5.3 to 3.4%	-10.5 to 1.7%	-8.9 to 3.9%	-9.3 to 4.1%
PLEMA	**5.8**	**181.0**	**1.5%**	**-7.7%**	**5.4%**	**3.5%**
range:	2.8 to 11.2	51.9 to 433.6	-7.0 to 7.2%	-19.6 to -0,4%	1.8 to 9.6%	3.2 to 4.0%
BEM	**149.4**	**109.3**	**16.9%**	**16.1%**	**13.8%**	**15.8%**
range:	6.7 to 950.2	20.5 to 384.6	-4.4 to 52.6%	-9.7 to 42.3%	-5.2 to 51.1%	-11.2 to 50.0%

Sources: People/Car: calculated from country statistical yearbooks and Wards PARC; Weekly Wages: OECD (1991) and author fieldwork (1998); Sales and Production Growth: Wards Decade of Data

3 We have placed the Eastern European countries in the PLEMA category even though they do not yet share a common market agreement with the EU, and contain assembly plants that are currently focused on supplying local markets. There is widespread expectation that the EU will be broadened to include some Eastern European countries in the near- to medium-term. When such a pact is made, we believe that many of the plants in Eastern Europe will begin to supply Western Europe with finished vehicles.

Using the locational typology of LEMA, PLEMA, BEM allows us to see the component parts of the globalization process more clearly, and to make comparisons among them. Through the use of this typology foreign direct investment in BEM locations such as Vietnam can be placed in the broader context of globalization. The typology allows us to separate BEM locations, such as Vietnam, from PLEMA locations, such as Mexico. While these two locational types are quite different, as Table 6 reveals, they are often undifferentiated in discussions of globalization.

The employment impacts of new investments in BEM, LEMA, and PLEMA location are variable. Plants in LEMA and PLEMA locations are usually larger, integrated assembly plants that produce in high volume (e.g. 350,000 units/year). Integrated assembly plants rely on a “free-flow” of parts and modules to the plant. Because vehicles are assembled from individual parts, not kits of parts and pre-assembled modules, integrated plants employ many more workers than CKD plants. Integrated plants employ 1,500 to 2,500 workers. Even larger plant complexes, producing 750,000-1,000,000 vehicles each year can employ 5,000 or more workers (e.g. Hyundai’s four-plant complex in Ulsan, Korea). CKD plants in BEM locations, because the markets they serve are just beginning to take shape, are generally much smaller in terms of capacity and employment.

Table 7 shows 1991 automotive sector wages for specific countries in the BEM, LEMA, and PLEMA categories. Even though BEM wages ($109/week) were lower, on average, than wages in other types of production locations (LEMAs: $552/week), it is important to note that BEM investments are not seen by automakers as a way to save on labor costs. As already mentioned, the lack of nearby supply and the costs of parts consolidation and shipping for CKD assembly far outweigh labor cost savings. PLEMA locations ($181/week), on the other hand, do offer automakers significant cost savings because they can rely on local and nearby LEMA supply bases for integrated manufacturing in low cost locations, shipping finished vehicles short distances into LEMA locations, all within low- or non-tariff trade blocs.

Table 7. Automotive Manufacturing Sector Weekly Wages, 1991 (except where otherwise noted)

Big Emerging Markets (BEMs)	1991 weekly wage (USD)	Large Existing Market Areas (LEMAs)	1991 weekly wage (USD)	Peripheral to LEMAs (PLEMAs)	1991 weekly wage (USD)
Indonesia	20.50	S. Korea	273.00	Poland***	51.90
India	34.80	Italy	471.90	Hungary***	75.00
Vietnam*	41.82	Australia	480.00	Mexico*	166.57
Philippines	43.50	Finland**	512.20	Portugal	178.10
Colombia***	53.80	Sweden	522.30	Spain	433.60
Thailand	76.40	United Kingdom	522.50		
Malaysia	78.20	New Zealand**	564.40		
Venezuela	96.30	Netherlands	564.70		
Turkey	195.70	Canada	646.70		
Argentina**	384.60	United States	682.10		
		France**	683.30		
ASEAN Average	54.65	Germany	712.70		
BEM AVERAGE	109.31	LEMA AVERAGE	552.98	PLEMA AVERAGE	181.03

** 1998 figures from author fieldwork. ** Transport Sector, 1991; *** Transport Sector, 1993; Source: OECD.*

4. THE CURRENT CONDITION OF THE WORLD AUTOMOTIVE INDUSTRY

4.1 The Macro-trends: Lean Production, Increased Outsourcing, Modularization, and Globalization

Globalization is only one of several strong trends driving change and adaptation in the automotive industry. First, automakers are trying to improve their organizations, particularly their manufacturing operations, by implementing the tenets of lean production (Womack, et. al., 1990). Lean production includes lower inventories, just-in-time parts deliveries, high performance work organization (teamwork, job rotation, etc.), and continuous improvement programs for quality and productivity. Following the path of continuous improvement requires a great deal of attention and monitoring. Second, the proliferation of automotive traffic in developed countries has created a host of serious environmental quality problems (e.g. air pollution, congestion, waste recycling). With issue of the environmental impact of motorization looming over the industry, automakers see an imperative to develop vehicles with low- or zero-emissions. Lastly, markets appear to be further fragmenting, putting additional pressure on automaker's design, distribution, and marketing capacities. All of these forces, globalization, lean production, environmental concerns, and market fragmentation are increasing development, process, logistics, and market complexity in the industry. The following sections will focus on the issue of globalization, one of the primary forces of change in the industry, and one that is most relevant for BEM locations such as Vietnam.

4.2 Drivers of Globalization

Automakers and their Tier 1 suppliers are aggressively internationalizing their operations in search of new markets (in BEMs) and lower production costs (in PLEMA locations). At the same time, the largest automakers are attempting to centralize the product development and corporate control functions of their organizations in their home locations, where they are working more closely than ever with Tier 1 suppliers. Both the centrifugal and centripetal aspects of the "globalization" process are having profound effects on the character of competition; and the quantity, quality, and location of jobs in the automotive sector. Moreover, many analysts who watch the automotive industry closely warn that the aggressive offshore investment that we are seeing today will create conditions of severe excess capacity in the near- and medium-term. With overcapacity further reducing already low profitability in sector, some analysts have warned of a major "post-globalization shake-out" that could permanently alter the competitive landscape of the industry and have disastrous consequences for the employees of the firms that lose.

4.2.1 Market Saturation at Home

New "offshore" vehicle assembly plant investments outside of home markets are being driven by slow growth and market saturation in the industry. After growing steadily during the mid-1980s, world-wide annual sales of new passenger cars were stagnant from 1989 to 1995. According to Wards, worldwide annual sales of passenger cars grew at an average annual rate of nearly 3.7% from 1983 to 1989, and then turned negative with an average annual rate of -.4% from 1990 to 1995 (see Table 9). Growth is slow in LEMAs because market penetration is very high. As a general rule, we can say that a market with fewer than three people per car is saturated (see Table 10).

Table 9. Worldwide Passenger Car Production by Automaker Origin, 1983-1995 ('000 units)

	1983	1984	1985	1986	1987	1988	1989
European	10,461	10,062	10,434	11,244	11,880	12,440	12,645
American	10,752	11,905	12,401	12,194	11,222	11,605	11,353
Japanese	7,545	7,595	8,240	8,495	8,784	9,442	10,670
S. Korean	122	159	264	457	793	872	887
Others	172	230	275	362	489	516	558
Total	29,052	29,951	31,614	32,752	33,167	34,876	36,112
% change	9.3%	3.1%	5.6%	3.6%	1.3%	5.2%	3.5%
AAGR 83-'89							**3.69%**

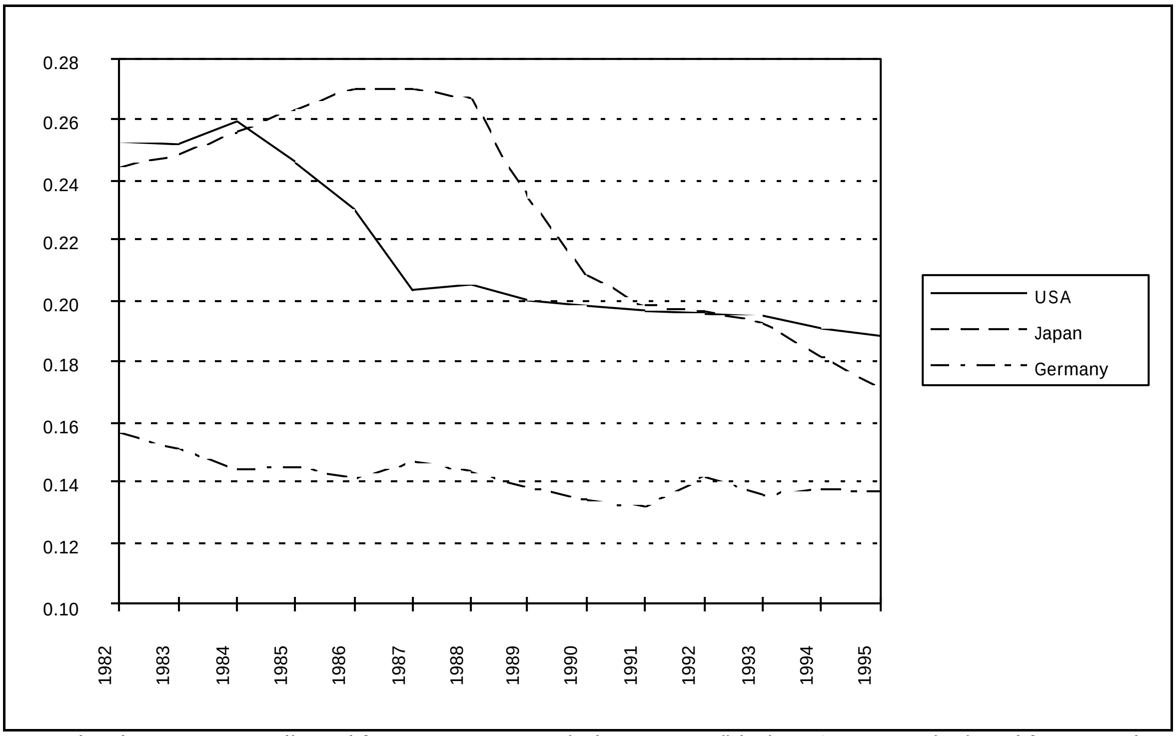
	1990	1991	1992	1993	1994	1995
European	12,357	11,968	11,887	10,597	11,590	11,544
American	10,496	9,909	10,009	10,188	10,656	10,641
Japanese	11,777	11,594	11,409	10,820	10,431	10,474
S. Korean	994	1,186	1,322	1,607	1,806	2,006
Others	638	602	665	511	610	837
Total	36,263	35,260	35,291	33,723	35,094	35,503
% change	0.4%	-2.8%	0.1%	-4.4%	4.1%	1.2%
AAGR 90-95						**-0.42%**

Source: Wards Decade of Data

4.2.2 Increased Competition at Home

Besides slow growth, automaker's home markets have become much more competitive. There has been an increase in the number of firms selling cars in mature markets such as the United States, Germany, and Japan. Figure 1 presents an analysis of passenger vehicle sales in the United States, Japan, and Germany according the Herfindahl Index of Market Diversity. The index would be zero if market share was evenly distributed among automakers. The index would be one if a single company had 100% of national market share (monopoly industry structure). Thus, the lower the index the more diverse the market. Figure 1 shows an across-the-board decrease in market concentration in the United States, Japan, and Germany, revealing the heightened competitive pressure that automakers have been experiencing in their home markets. Germany, as with most European countries, has long had a diverse automotive market due to the interpenetration of Europe's car markets by European automakers as well as the active presence of American firms. However, strong sales by Japanese automakers have brought the index down further since the late 1980s. In the United States, inroads by Japanese automakers increased the competitive pressure dramatically in the early 1980s. In Japan, increased market diversity has come almost entirely from the success of smaller Japanese automakers, and the declining dominance of Toyota and Nissan as they "hollow out" domestic production by substituting exports with local production in Europe, North America, and ASEAN.

Figure 1. Passenger Vehicle Sales in the USA, Japan, and Germany: Market Concentration According the Herfindahl Index (1=monopoly)



Note: the data was not adjusted for new entrants or industry consolidation. Source: calculated from Wards Decade of Data.

4.2.3 The Lure of Big Emerging Markets

Slow growth, market saturation, and increased competition at home have lead automakers to the obvious conclusion that future growth will occur in BEMs, particularly in countries with the largest populations, such as China, Brazil, and India. Table 10 presents an international reverse ranking of market penetration, measured as people per car in each country. The United States, Australia, and countries in Northwest Europe all had more than one car on the road for every three people in 1993 (representing a saturated market), while Vietnam, China, Pakistan, the Philippines, and India each had fewer than one car on the road for every 100 people. Vietnam tops the list with 950 people for every car in operation. It is this statistic, more than any other, that explains the recent wave in vehicle assembly plant investments in Vietnam.

Table 10. Market Penetration by Reverse Ranking: People per Car by Country

Rank	Country	People/Car		Rank	Country	People/Car
1	Vietnam	950.2		21	Portugal	4.4
2	China	487.9		22	Ireland	3.8
3	India	244.9		23	Czech Republic	3.5
4	Pakistan	154.0		24	Slovak Republic	3.5
5	Philippines	118.2		25	Japan	2.9
6	Indonesia	107.9		26	Spain	2.8
7	Thailand	54.0		27	Netherlands	2.6
8	Columbia	36.5		28	Belgium	2.4
9	Turkey	21.2		29	Puerto Rico	2.4
10	Russia	15.9		30	Sweden	2.4
11	Brazil	13.2		31	France	2.3
12	Venezuela	12.6		32	United Kingdom	2.3
13	Mexico	11.2		33	New Zealand	2.2
14	Chile	10.8		34	Australia	2.1
15	Singapore	8.9		35	Austria	2.1
16	Korea	8.4		36	Canada	2.0
17	Argentina	6.7		37	Germany	2.0
18	Poland	5.5		38	Italy	1.9
19	Taiwan	5.3		39	Luxembourg	1.7
20	Hungary	4.9		40	United States	1.7

Source: Calculated from Country Statistical Yearbooks and Wards PARC.

4.2.4 Globalization and Overcapacity

Globalization means that automakers are increasingly adopting a "built-where-sold" approach to automobile manufacturing, even in an environment of falling barriers to trade. The assumption of the automakers is that locating production where cars are sold garners the maximum amount of good will from host governments seeking to reduce trade deficits, as well as from consumers, who tend to buy locally-built vehicles for nationalistic reasons. Furthermore, local production provides automakers with a natural hedge against currency fluctuations (as long as parts can be supplied locally).

Since the early-1980s the automotive industry has been undergoing an unprecedented boom in new “offshore” automobile assembly plant construction in large existing and emerging markets (LEMAs and BEMs). The wave was initially propagated by Japanese firms investing in the United States but is now being driven in large part by American and Korean firms investing in BEMs such as China, India, the ASEAN nations, Brazil, Argentina, and Russia.

The data presented in Table 11 is drawn from the International Motor Vehicle Program’s Global Assembly Plant Database (based on data from Automotive Industries and other sources), which contains general information on 521 assembly plants, a very high percentage of the world’s total. Efforts to collect data on the plants is ongoing. At the time of this writing inception dates have been collected for 37% of the plants in the database. Since more inception dates have been collected for newer plants, these data are more complete in the recent time periods (1980s and 1990s). The data on capacity has been collected for 79% of the plants in the database, but only 62% of the plants for which inception dates have been collected.

While Table 11 is drawn from an as-yet-incomplete data set, it clearly demonstrates several points. First, as just mentioned, there has been a shift in both the origin and destination of new assembly plant investments since the 1980s. In the 1980s, the largest group of new assembly plants were established by Japanese firms in the United States (12). In the 1990s, the bulk of the new investment activity has come from American (19) and South Korean (13) firms establishing plants in big (and some small) emerging markets (BEMs), while the number of plants in PLEMA locations has been growing steadily. Second, even when assuming that many of the plants established prior to 1980 are missing from the table, it is clear that the overall pace of new investment has picked up dramatically in the 1990s. Lastly, the size of new plants appears to have diminished rapidly, as far as we are able to judge from data on 1996 capacity (obviously, some of this effect could be due to older plants growing in size over time).

Table 11. New Passenger Vehicle Assembly Plants by Type of Investment Location: Home Country of Investing Automaker and Average 1996 Capacity, 1980-1998. (draft version: inception dates collected for 193 (37%) of 521 plants)

New Plant Location Type	pre-1960	1960-1969	1970-1979	1980-1989	1990s
Home (USA, Europe, Japan, Korea)	AAAAAAAAA AAA EEEE J	AA JJJ EE	A JJ	A E	JJ K
Large Existing Market Areas (e.g. USA, Australia, Canada, Western Europe)	AAAAAAAAA AAA	AAAAAAA EE JJ	AA J	AA JJJJJJJJJJJ	AA E JJ
Peripheries of Large Existing Mkt. Areas (e.g. Mexico, Spain, Eastern Eur.)	A	A J	AA E	AAA JJ	AAAAA E
Big Emerging Markets (China, India, Brazil, Russia, Thailand, Vietnam, Turkey). Note: some small emerging markets, such as Namibia and Botswana, are included in this data.	AA E J	AAAAAAA E JJJJJ	AAAA E JJJJ	AAAAA E JJJJJJ	AAAAAAAAA AAAAAAAAA A EEEEEEEEE JJJJJJJJJJ KKKKKKKKK KKKK
New Plants per Time Period	35	35	19	33	69
Average Unit Capacity in 1996 (earlier plants could have grown)	267,471	197,577	243,043	210,024	55,061

Key: A: American automaker; E: European automaker; J: Japanese automaker; K: South Korean automaker. Source: Global Assembly Plant Database, International Motor Vehicle Program, Massachuc etts Institute of Technology (based on data from Automotive Industries and other sources).

Since the recent and planned assembly plant investments are being made in an environment of declining capacity utilization, it likely that the industry will move into a period of severe overcapacity in the near future. In a report by AUTOFACTS, the automotive planning group of Coopers & Lybrand Consulting, it is estimated that excess capacity will reach 21 million units by 1998, more than one and one half times the total 1996 passenger vehicle output of North America. By most estimates capacity utilization today is about 75%, which is a relatively low point at which to see a boom in new investment (in a "rational" environment one would predict that new investment would be made when capacity utilization is high).

The sheer volume of recent and planned investment, and the willingness that we found in recent headquarters interviews for automakers to endure negative returns on new BEM investments, at least in the short-term, give the current capacity expansion all the earmarks of a classic speculative over-extension, where supply far outpaces demand as large groups of investors try to gain an early-mover advantage at the same time. In recent headquarters interviews we found a corporate imperative to quickly establish "beach heads" in emerging markets at nearly any cost. Such imperatives are only sharpened when competitors make similar moves. What should decrease the attractiveness of a new market, increased competition, is instead spurring automakers to redouble their efforts. Such is the irony of speculative bubbles, when a "herd mentality" rules investment decisions (see Section 4.4 for an extended discussion). If the threat of severe overcapacity is real then, the relevant question becomes: what are automakers doing to reduce their exposure to this risk? Since forgoing investments in BEMs is not seen as a viable option by most automakers, what other measures that are being taken? The following section provides some answers to this question.

4.3 Measures Taken to Mitigate the Risk of Worldwide Overcapacity

Automakers are employing a variety of measures that may have the effect of reducing the risk of over-investment. While some of these measures are explicitly intended to hedge against excess capacity, others are being pursued for different reasons but may have the complementary effect of reducing investment risk as well. In the former category are the practices of developing common "global" platforms, deploying common processes, and testing new markets with small but expandable plant designs. In the latter category are the practices of centralizing control and development functions in core locations, simplifying the final assembly process through modularization, and increasing outsourcing to larger, more global suppliers. Taken together, these measures have the goal of simplifying the process of developing, manufacturing, and selling automobiles.

Globalization is creating an increasingly complex organizational problem for automakers. As automakers stretch geographically, their organizational capacity becomes stretched as well. Each new plant that comes on-line must have everything needed to produce automobiles, including plants buildings, production equipment, personnel, material and components. Negotiating with host governments, establishing new plants, building the local supply-base, and establishing adequate sales and service organizations are all difficult and risky activities that can absorb a great deal of automakers' organizational and financial resources.

As a result, automakers that have had operationally independent international divisions (e.g GM's Opal Division and Ford Europe) are now attempting to centralizing corporate governance, purchasing, and product development functions in core locations. With development and purchasing centralized, new investments can be confined to production, distribution, and service organizations. Such centralization makes the process of developing common products and processes easier. Platforms designed centrally can then be deployed on a global basis, reducing redundant product development steps. One of the primary goals of centralized purchasing is to make the components, production equipment, and design tools that a company buys more common.

Automakers are attempting to offset the complexity created by globalization by pushing for simplification. Automakers are minimizing the size of their new investments, minimizing the number of unique parts in the automobiles they sell, simplifying the final assembly process through modularization, minimizing the variety of the design and production tools they use, minimizing the number of components they make in-house, and minimizing the number of direct suppliers they use.

While the many of the strategies discussed in this section may have the effect of reducing the risk of over-investment, other trends in the industry are having the effect of increasing such risks. For example, rising productivity from both lean production and increased throughput from modularization can increase the effective capacity of new and existing plants, exacerbating problems with excess capacity.

4.3.1 Global Platform Development

All the automakers we interviewed are, to some extent, creating global platforms to improve internal (proprietary) product and process standardization. Cars based on global platforms will then be tailored to fit local market conditions. Some automakers are attempting to take the further step of standardizing production fixtures across all similar-sized passenger vehicle platforms and models. The aim is to make assembly plants less model-specific. The more "generic" manufacturing capacity is, the less vulnerable it is to overcapacity problems. With enough standardization better selling models could be substituted on the production lines of underutilized plants on short notice. Standardization among manufacturing operations would also make the transfer of learning across a widely dispersed organization more likely.

4.3.2 Outsourcing and Supplier Sharing

An established base of internationally operating suppliers is a welcome thing to automakers locating production in new markets. Automakers are working with fewer, larger suppliers, and giving them a greater role in product and process development. Some component and module design tasks, as well as Tier 2 and Tier 3 supply-chain management, are being passed outside automaker organizations to Tier 1 suppliers. A recent wave of mergers and acquisitions among Tier 1 suppliers represents a consolidation and intermingling of the North American, South American, and European supply-bases at the Tier 1 level (the top 30 suppliers are listed in Table A1 in the appendix). The Asian supply-base remains largely separate for now, although large American suppliers such as Delphi, TRW, and Lear have moved aggressively to set up Asian manufacturing operations.

Tier 1 suppliers are also embarking on a wave of new plant construction in emerging markets, and, because they serve a variety of automakers, the largest and most global have facilities located in more places than any one of their customers. Highly capable suppliers with global operations reduce the size of the investments that their customers need to make to manufacture in new markets. We call such suppliers "turnkey suppliers" because they provide a wide range of services that allow automakers to take a "hands-off" approach in the relationship. Besides design, turnkey suppliers purchase the parts needed for the modules they assemble. In the context of a plant in a BEM location, where the supply-base is likely to be poorly developed, turnkey suppliers take on a significant amount of the responsibility for meeting local content goals, including the often difficult tasks of finding and developing Tier 2 and Tier 3 suppliers, and managing the logistics for the parts it must import.

Table A2 in the appendix provides a list of cities in the International Motor Vehicle Program's Global Assembly Plant Database where three or more assembly plants owned by different automakers are located. The entire list, except for the PLEMA location of Setubal, Portugal, consists of BEM locations, and the average plant output is very small (25.5K units in 1995). The implication is that the new, smaller plants in BEMs are more interdependent, and share the supply-base in their immediate surroundings to a degree unheard of in LEMA locations. For example, not only do Chrysler, Ford, General Motors, and Honda have plants in Valencia, Venezuela, but the suppliers Arvin, Bridgestone, Bundy, Gates, Goodyear, and PPG have facilities there as well. Such "piggy-backing" of new plants on existing production locations may well create strong agglomerative effects in BEMs that will continue to attract new investment, allowing us to predict where the future centers of automobile production will be.

4.3.3 Low Volume Production Strategies

Automakers are trying to simplify the final assembly process by increasing the number and complexity of module sub-assemblies manufactured off the final assembly line. With less complexity, line speed can be increased and the number of worker-hours spent assembling each vehicle can be reduced. On a per-unit-capacity basis, modularization allows final assembly lines to become smaller, simpler, and less expensive, reducing the investments needed to enter new markets. When combined with the concepts of common platforms and common production fixtures discussed above, the idea of modularization and line simplification becomes part of a powerful global vision, where different car models can be assembled in any plant in any location because the required production equipment is the same. While modular final assembly can well be pursued as an in-house production strategy, at most automakers the move to modules has been intimately connected to increased outsourcing.

Other approaches to investment risk reduction and market testing are complete-knock-down (CKD) kit assembly plants, with kits coming from "consolidation centers" that draw on existing plants and suppliers; consignment-style contract- and license-manufacturing, where kits are assembled by third party contract and license assemblers (e.g. the Astra Group in Indonesia and Steyr in Austria); and jointly operated plants, where capacity is shared among two or more automakers (e.g. Fiat and Peugeot in Argentina and Ecuador). New CKD plants and consignment-style contract manufacturing arrangements, because they draw on existing facilities, can actually alleviate overcapacity problems at home.

The lowest risk approach to entering new markets is to test them by importing finished vehicles, but besides increasing prices dramatically, this approach is too slow when competing with firms that are making investments to "build-where-they-sell.". Some automakers are trying to reduce their investment risk in new markets by building plants that can manufacture a range of products (to test market acceptance of various models before increasing model-specific investments), and that can be scaled up from low- to high-volume production in the face of increasing demand. This means that initial investments are for smaller, simpler plants (see Table 11, bottom row). Labor intensity, and therefore capital investment requirements, can initially be very low (in BEMs, low labor costs make this an even more attractive approach); dependence on suppliers and existing plants for module subassembly and module kits can be initially high; and capital-intensive processes (e.g. stamping, body welding, and body painting) can initially be done at existing plants and components shipped to new ones.

4.3.4 Globalization Best Practices

How severe future over-capacity problems become depends on how effectively automakers implement and manage the complexity that will arise from pursuing the mix of strategies listed in Table 12, some of which heighten the risk of over-investment. But if implemented well and very, very quickly, some of the strategies outlined in this section could succeed in reducing the risk of over-investment. It may be that the capacity that is now being deployed in BEMs will be very different from what has come before.

Table 12. Automobile Production: A Possible Consensus on Globalization Best Practices and Other Strong Trends in the Industry

Globalization Best Practices?	
	- Recognize unique market requirements - Develop vehicles that can be tailored to various markets - Manufacture locally - Build smaller plants that are flexible and expandable - Hire very selectively and build workforce loyalty - Attract existing suppliers to new plant locations - Transfer what is learned in one place to others - Move personnel from location to location
Other Strong Trends	
	- Modularization of final assembly - Lean production - Increased outsourcing

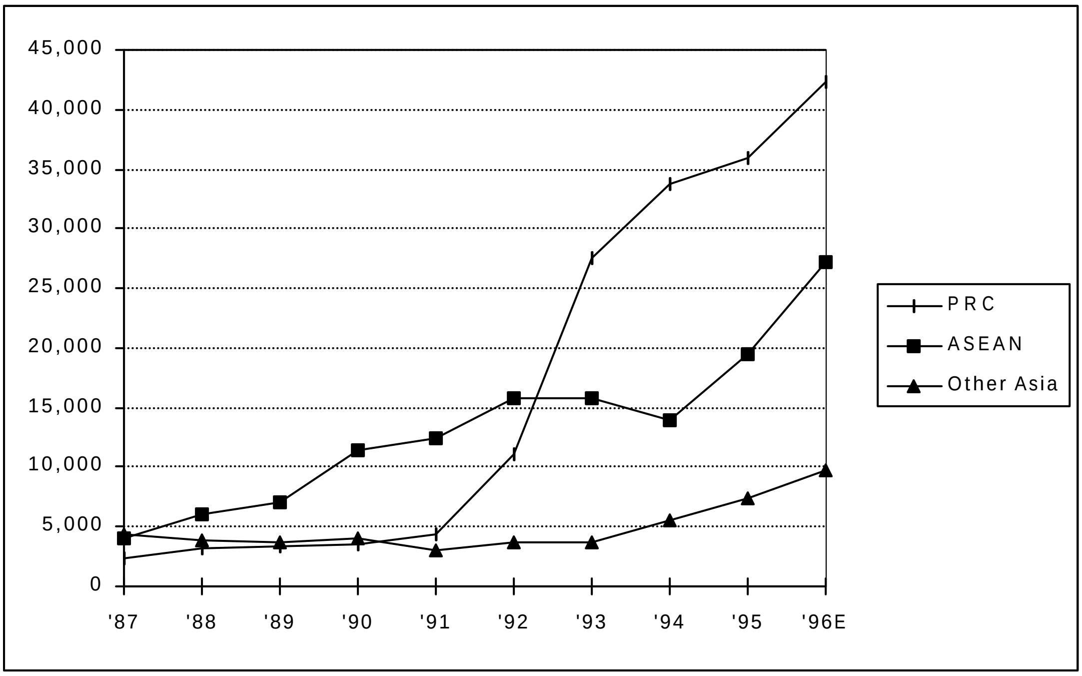
Source: Globalization and Jobs Project Headquarters Interviews.

4.4 Over-investment and the Asian Financial Crisis: A Discussion of Economic Cycles and Speculative Bubbles

Standard neoclassical economic theory posits that capital automatically migrates toward investments where it can earn the highest return, but in practice, the process does not always work so efficiently, sometimes resulting in boom-bust cycles of under- and over-investment. As investment capital has become increasingly mobile, and can be more easily shifted from one location to another, the problem of over-investment has become more acute (Storper and Walker, 1989). Over-investment comes when a group of investors decide to invest in the same place at the same time. The social dynamics of such herd behavior are strong when a relatively small number of actors base their decisions on the same information and have good knowledge of what the others are doing. The automotive industry provides just such an environment. Capital investment, because it is long lasting, is particularly prone to over-investment. Seven-to-ten year cycles have been well documented in fixed capital investments, especially in real estate speculation (Abramowitz, 1961, 1964; Kuznets, 1966).

The notion that emerging markets, particularly in Asia, were to be the locus of rapid economic growth in the medium term has been widespread, driving a huge wave of new investment into Asia. It is now well known that this boom ended abruptly in the summer of 1997, when many of the ASEAN economies, overheated by the rapid influx of foreign capital without sound investments, began to implode. It is likely that the FDI figures for 1998 and 1999 will be much lower than what was estimated by United Nations for 1996; they will likely have fallen back to 1991 levels or below. This kind of boom-bust cycle, lasting about eight years, and dropping suddenly from its peak, has all the earmarks of a gigantic region-wide speculative cycle of over-investment, where distant investors under sway of the herd mentality keep pouring money into a region where opportunities for profitable ventures have long been taken up by others who invested early on. It is also likely that China's crisis has been smaller, even in the face of massive FDI inflows, because its economy is large and dynamic enough to more adequately utilize the incoming capital.[4]

Figure 2. FDI Inward Flows to China, ASEAN, and Other Asian Host Economies, 1987-1996, ($M)



Source: UN Conference on Trade and Development; Division on Transnational Corporations and Development; World Investment Report, Annex Table 1: FDI inflows, various years, New York and Geneva. Other Asia includes India, Korea, Taiwan.

The lesson of the Asian economic crisis is that FDI alone is not enough to drive economic development. To gain significant economic benefits from FDI for manufacturing, host country economies must be dynamic enough to utilize investments in

4 Not all over-investment comes in the form of inward FDI. While over-investment does hurt host economies when assets are radically devalued during the bust cycle, financial damage is also dome to outward investors (and sometime their home economies). Unprudent doemstic investment too can create a boom-bust cycle. For example, over-investment in Korea (both in the form of domestic investment and outward FDI) has come largely from domestic financial institutions and industrial groups (FDI in Korea has been very small). Still, the financial crisis in Korea has been very severe.

a way that they become profitable in the short term. The host economy must rise to meet the new investments with a healthy, literate workforce and a set of "proto-suppliers" willing to learn from their new customers. Of course, because it is relatively fixed, a portion of the devalued capital investments stays in place after the boom where it can act as low cost "fuel" for the next round of growth (Harvey, 1985). However, some of the most important benefits of capital investments, especially in the manufacturing sector, are the "soft" activities associated with them: advanced management and work organization practices, technology development and transfer, employee training, linkages with distant economic entities, etc. The economic benefits associated with these activities are lost to the host country when foreign partners withdraw from the scene. By itself, devalued plant and equipment for the assembly of automobiles would do the Vietnamese economy little good if foreign firms were to withdraw from their Vietnamese partnerships.

5. WHERE THE VIETNAMESE AUTOMOTIVE INDUSTRY FITS

5.1 Vietnam as a Big Emerging Market Location

Table 13 shows that the Vietnamese operations of the foreign automakers account for an extremely small percentage of total firm production capacity. Vietnamese production volumes typically account for less than one percent of total firm output. For example, except for its luxury and sport car factories in England (Jaguar and Aston Martin), Ford's plant west of Hanoi is the company's smallest capacity plant (then next smallest is its van plant in Asambuja, Portugal, that was operating at 36% of its 25,000 unit capacity in 1995). It is clear that most automakers have invested in Vietnam as part of a long-run strategy to participate in the growth of BEM and "transition" economies.

Table 13. Vietnamese Motor Vehicle Production and Capacity Compared to World Production and Capacity.

Company	Total 1995 Production	VN 1998 Annual Capacity	Vn Capacity % 1995 Production	Current VN Annual Output**	Cur. Vn Output % 1995 Production
Daewoo	523,459	10,500	2.0%	605	0.12%
Daihatsu	606,323	2,000	0.3%	556	0.09%
Daimler Benz	3,389,163	10,000	0.3%	359	0.01%
Ford/Mazda	7,520,491	14,000	0.2%	1,000	0.01%
Hino Motors	*	UA	UA	50	UA
Isuzu	458,673	10,000	2.2%	135	0.03%
Mekong	2,024	35,000	1,729.2%	527	26.04%
Mitsubishi	1,536,583	5,000	0.3%	688	0.04%
Nissan	2,843,352	1,000	0.0%	UA	UA
Toyota	4,464,230	5,000	0.1%	1,400	0.03%
VMC	UA	20,000	UA	1,347	UA

** Included in the Toyota figure. **1997 figures or 1998 estimates based on April production rates.*
Source: International Motor Vehicle Program's Global Assembly Plant Database (based on data from Automotive Industries and other sources) and April 1998 author fieldwork.

5.2 Corporate Citizenship: a Long Term Commitment to Local Manufacturing

Most automakers do not expect their Vietnamese investments to be profitable for some time. For large companies, such as Ford and Toyota, initial investments of $50-$70M and operating losses of $10M or so each year can be considered small. Recent and planned investments for higher volume (about 150K units/year) assembly plants in places such as Brazil, China, and the former East Bloc countries are costing automakers about $500M each. The goal of the automakers in Vietnam, as in these other locations, is to become part of the economic and social fabric of the host countries. Many firms, especially American automakers, have programs in place to pass responsibility to local managers as rapidly as possible. Lessons from mistakes made in the past, such as ignorance of local market conditions, trends, and tastes, are being kept in mind during the product development process. Common "global platforms" can be used with a wide variety of vehicle models, and model characteristics can be modified, or "localized," to fit the requirements of specific markets.

Becoming a "corporate citizen" in a new location takes a long time, especially in locations without established automotive markets and low levels of motorization. As a result, automakers are taking a long view of their activities in BEMs such as Vietnam. One "rule of thumb" used by automaker strategic planners is that GDP per capita must reach about $1,000 per year to create a market large enough to support a profitable automotive industry, and $4,000 per year for rapid industry growth. Table 14 shows the length of time that it will take to reach these milestones from the starting point of Vietnam current GDP per capita (about $270 in 1997) and population growth rate. Assuming Vietnam's GDP continues to grow at its 1997 rate of about 8% (an unlikely prospect in the face of the current economic crisis in Asia), it will take 14 years to reach industry profitability and 31 years to reach the point of rapid industry growth.

Table 14. Estimated Years to Vietnamese Automotive Industry Profitability and Rapid Growth.

GDP/Capita Annual Growth Rate	Year when >$1,000 GDP/capita attained	Years to possible industry profitability	Year when >$4,000 GDP/capita attained	Years to possible rapid industry growth
14%	2005	7	2016	18
11%	2008	10	2020	22
8%	2012	14	2029	31
5%	2020	22	2047	49
2%	2051	53	2109	111

5.3 The ASEAN Automotive Industry

Until the recent economic crisis in Asia, the ASEAN automobile industry was considered to be one of the most dynamic in the world. After a slight slump in 1991, sales and production grew strongly from 1992 until the crisis began in the summer of 1997. Estimates were generated at automakers and consulting firms that ASEAN automotive sales in ASEAN would soar to several billion units each year by the year 2000. For its part, the Vietnamese government estimated the local market to reach 180,000 units by the turn of the century. (Vietnam Economic Times, October 1997). Investments by American automakers and first tier suppliers flooded in as these firms tried to gain a foothold against the market dominance of Japanese automakers and suppliers, who had been investing in ASEAN production capacity since the early 1970s, and especially since 1985 (when the valuation of the yen caused exports from Japan to become extremely expensive), and held about 90% market share. Along with other big emerging Asian markets, such as China and India, automotive sector investment activity was booming in ASEAN, culminating in Thailand's highly publicized victory over the Philippines for a new General Motors assembly plant (GM has since put plans for this 150,000 unit annual capacity plant on hold).

Still, most of what ASEAN had to offer automakers was the promise of future profits. As of 1995, the most recent year for which estimates are available, vehicle production in ASEAN accounted for only 4.2% of world production (see Table 15). As the economic crisis has only deepened over the past year, much of this promise has evaporated. ASEAN automobile sales have plummeted, coming to a near standstill in the hardest hit countries, such as Indonesia. Many plants have been temporarily idled and workers have been laid off. In July, 1998, Mazda (Japan) permanently closed one of three assembly plants in Thailand. Some Japanese firms have tried to utilize at least part of their ASEAN production capacity by exporting vehicles to Japan, but poor economic conditions there suggest that this approach will not provide much relief.

Table 15. ASEAN Motor Vehicle Production and Capacity Compared to World Production and Capacity.

	1995 Production	1995 Capacity	% Utilization	% World Production	% ASEAN Production
World Total	48,183,636	64,074,840	75%	-	-
ASEAN	1,274,665	2,017,605	63%	4.2%	-
Indonesia	270,801	442,930	61%	0.9%	21.2%
Malaysia	295,262	449,017	66%	0.9%	23.2%
Philippines	93,525	164,000	57%	0.3%	7.3%
Thailand	604,516	898,102	67%	1.9%	47.4%
Vietnam	3,720	53,556	7%	0.1%	0.3%

Source: International Motor Vehicle Program's Global Assembly Plant Database (based on data from Automotive Industries and other sources).

What the Asian economic crisis means for the Vietnamese automotive industry remains to be seen, but it is safe to say that, given the radically altered regional investment climate, the next steps that Vietnamese policy-makers need to take—maintaining the presence of the strongest automakers and attracting first-tier suppliers—will be much more difficult to accomplish than the initial efforts to attract automakers have been.

5.3.1 The AICO Scheme

There is a long history of formal “complementarity” schemes in ASEAN, including the ASEAN Industrial Joint Venture (AIJV) begun in 1983, the Brand-to-Brand Complementarity (BBC) scheme begun in 1988, and the ASEAN Industrial Cooperation (AICO) scheme begun in 1996. All of these programs have been based on resource-pooling and market-sharing among ASEAN member states as a way to generate and exploit firm- and industry-level economies of scale. The idea is simple: since each member country by itself has a small market, complementarity schemes are put in place to allow parts manufacturers to supply final assemblers in all member states from a single ASEAN location at favorable terms of trade as long as inter-ASEAN trade among participating companies remains balanced (final assembly has traditionally been excluded from complementarity schemes). Toyota’s parts complementation scheme in ASEAN, for example, includes the exchange of transmissions from the Philippines for engines assembled in Thailand and Indonesia. Under this arrangement, Toyota’s transmission plant in the Philippines can achieve much higher economies of scale than it would if it were producing for the Philippine market alone. The same is true for the engine plants in Thailand and Indonesia. Parts suppliers also have participated in ASEAN complementarity schemes. Denso (Japan), for example, ships Indonesian-built compressors to Thailand in exchange for starters and alternators. ASEAN complementarity schemes have gained significant participation, largely from Japanese firms (although American firms, such as Ford and Delphi, are now joining in). In 1996, when BBC gave way to AICO, the program had 70 approved projects supplying parts to 10 automakers.

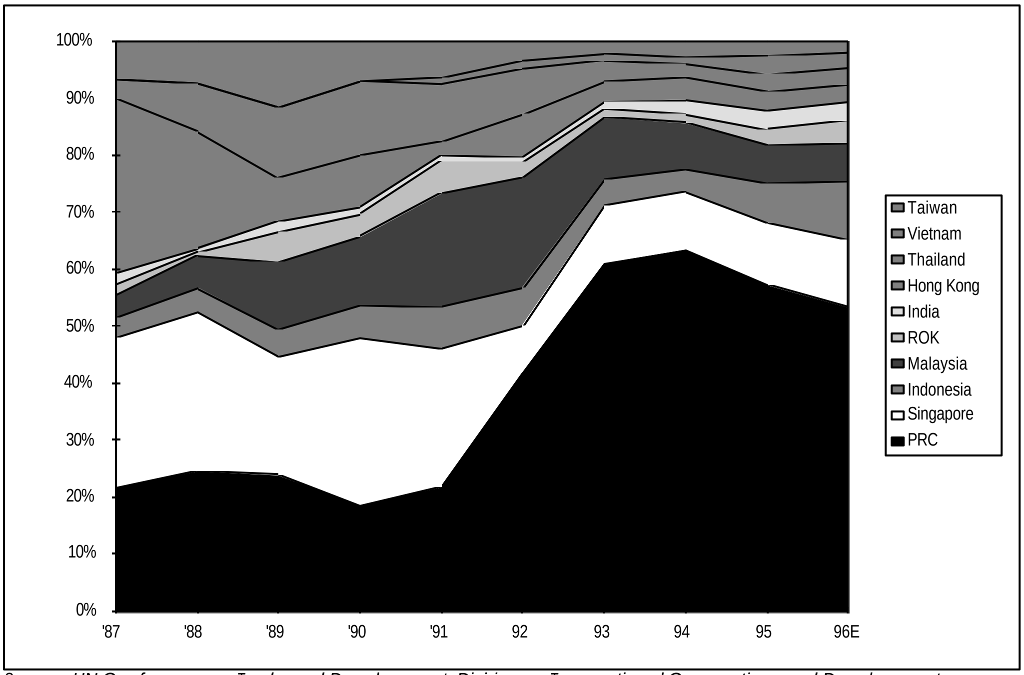
AICO is different than previous arrangements mainly in that is allows complementarity schemes to be set up between separate firms. A minimum of two companies in two different ASEAN countries are required for participation. Parts approved under AICO have tariff rates dropped to 0-5% well ahead of AFTA implementation in 2003. Participating companies must also provide evidence of cooperative activities such as technology transfer, inter-firm training, or consolidated purchasing in order to gain project approval. The goal of AICO is to boost the competitiveness of the ASEAN region by encouraging firms to establish plants with better economies of scale, thereby stimulating inter-ASEAN trade, FDI, technology transfer, and the like.

Vietnam should take an active role in ASEAN efforts to pool resources and enhance the region’s competitiveness. While a nationalistic tendency to create “complete” industries in Vietnam is understandable given the nation’s hard-won struggle for independence, and may have fit well with the geopolitics of earlier times, it will only be through international integration and cooperation that economic development will progress rapidly in Vietnam, especially given the lack of modern industrial techniques currently in use (see Section 7 for related policy recommendations).

6. VIETNAMESE GOVERNMENT POLICY TOWARD THE AUTOMOTIVE INDUSTRY

In 1986 the Vietnamese state began—with its "doi moi" program of economic renovation—to experiment with policies intended to begin the process of deregulating and opening domestic markets to international competition. Liberalization measures have included curbing price controls and state subsidies, officially allowing private businesses to operate, liberalizing trade flows, and reducing foreign exchange controls. This process of opening the economy to the outside was accelerated in 1988 when the government began to actively seek FDI. FDI inflows remained very small until 1993, however, when the United States dropped its objections to loans to Vietnam for infrastructure projects from multilateral lending agencies (e.g. the International Monetary Fund and the World Bank). When the United States officially dropped its economic embargo against Vietnam in February, 1994, FDI from American companies began to flow in. Vietnam's share of FDI inflows to Asia remains small, mainly because of poor infrastructure, relatively unattractive government policies and practices, and a state that is regarded as having a lingering wariness of free markets and private business (Mason, 1998).

Figure 3. Share of FDI Inward Flows, 1987-1996, Selected Asian Host Economies



Source: UN Conference on Trade and Development; Division on Transnational Corporations and Development; World Investment Report, Annex Table 1: FDI inflows, various years, New York and Geneva

6.1 FDI Rules

The establishment of 100% foreign-owned businesses is discouraged in Vietnam, though not explicitly forbidden; foreign companies are usually asked to form joint-ventures (JVs) with Vietnamese firms, usually state enterprises, which typically own 30% of the enterprise and have representatives on the JV's board of directors. In the case of the automotive industry, only automakers are required to have a local partner; 100% foreign-owned investments are allowed for the manufacture of parts and accessories.

Because of their inexperience in modern commercial production and sales, Vietnamese partners provide little in terms of technical or management expertise. Even basic business concepts can be lacking. During one field interview, a foreign manager told of a board member from the local partner questioning the need for advertising, sales, and distribution in Vietnam. The expectation was that customers would to come to the factory to purchase vehicles. One advantage cited for having a local partner was the help provided in navigating within, and negotiating with, government bureaucracies. If such insider status is required to deal with government agencies, it is likely that bureaucratic systems need vast improvement in terms of increased transparency and reduced corruption.

Local partners have only contributed land, and sometimes buildings, to JVs with automakers. If the automotive industry is to grow, successful automakers will be required to invest in additional plant and equipment. Most automotive joint ventures already have more than enough land for expansion, so the question becomes: but what will local partners contribute in future rounds of investment? Is the local partner's share in the JV to drop when foreign partners increase their investment? If so, what will be the fate of the joint venture over the long term?

6.2 Localization Policy

The localization policy for the automotive industry is less aggressive than in other ASEAN countries, such as Thailand, Malaysia, and the Philippines. For final assembly of vehicles, current policy in Vietnam calls for 5% local content by the fifth year of operation and 30% local content by the tenth year of operation. (The rules for motorbike localization are more aggressive, calling for 5%-10% local content by the second year of operation and 60% by the sixth year.) By contrast, the localization policy in Thailand calls for 60% local content by the fifth year. While the intent of the current localization policy, like the FDI policy, is to encourage the establishment of the automotive supply-base in Vietnam, policy-makers at the Ministry of Planning and Investment recognize that localization policies are far too general. First, current policy fails to specify what kind of parts and accessories should be localized before others; the local content ratios remain very generally stated. Second, no attempt is currently being made to coordinate investments in parts and accessories with those already made for vehicle assembly. Third, little progress has been made to design localization policies to fit the regional perspective that most automotive parts suppliers view their operations in ASEAN.

6.3 Trade and Tax Policy

Vietnam's current mix of import tariff's and consumption taxes, summarized in Table 16, does provide some "protection" to the local automotive industry. Until recently, it has been significantly cheaper to buy a domestically produced vehicle than an imported one. However, a new luxury tax of 100% threatens to decrease that advantage significantly. Vice Minister Chuan (Ministry of Industry) has proposed dropping the new tax to 30%. Automaker country managers have warned that this new tax threatens the very existence of the industry in Vietnam.

Table 16. Tariff and Tax Rates in Vietnam for Various Levels of Automotive Integration

Level of Integration (high to low)	Definition	Import Tariff	Luxury Tax	Effective Tax Rate
Completely built up (CBU)	Finished Vehicles	60%	150%	210%
Semi knock down (SKD)	All parts imported. Superficial assembly			
Complete knock down level one (CKD1)	All parts imported. Painting done in Vietnam			
Complete knock down level two (CKD2)	All parts imported. Body welding and painting done in Vietnam	55%	30%-100% (proposed)	55% - 155%
Incomplete knock down (IKD)	Greater than 10% of parts sourced locally			

Source: Vietnam Economic Review, 1998;

The current mix of import tariffs and consumption taxes does raise the sale price of imported vehicles relative to domestically produced vehicles (compare Table 16 with Table 17 below). On average, imported vehicles sell for 289% of USA sale prices, while domestically produced vehicles sell for 163% of USA prices. As Table 18 suggests, Vietnamese prices for imported used cars sell for the same premium as imported new cars. These data suggest that—without the new consumption tax—locally produced vehicles have a significant advantage in the market over imported vehicles, making an import ban unnecessary (on the other hand illegally imported used vehicles can significantly undercut prices). The larger problem that these data point to is the stunting of the local market by the high prices of motor vehicles in Vietnam in general. As already mentioned, the key to reducing vehicle prices in Vietnam, and thus increasing the market, is to foster the development of a local supply-base.

Table 16. 1997-1998 New Imported Vehicle Prices, Vietnam and the United States (US dollars)

Lead firm	Model	Price in Vietnam	Price in USA	Vn Price % of USA
Toyota	Camry	$48,500	$19,000	255%
Mitsubishi	Pajaro	$59,000	$22,500	262%
Chrysler	Jeep Wrangler	$55,000	$20,000	275%
Ford	Taurus	$60,500	$18,000	336%
Toyota	Landcruiser	$67,000	$45,000	149%
Ford	Explorer	$83,000	$25,000	332%
Volvo	960	$115,000	$28,000	411%
Average				289%

Sources: Vietnam: Lan, 1997; USA: author estimates based on Boston Globe, July 20, 1998.

Table 17. 1997-1998 New Locally Produced Vehicle Prices, Vietnam and the United States (US dollars)

Lead firm	Model	Price in Vietnam	Price in USA	Vn Price % of USA
Toyota	Corolla	$24,000	$13,000	185%
Daimler Benz	Mercedes E-series	$74,500	$45,000	166%
Mazda	626	$31,330	$20,500	153%
BMW	3-series	$49,000	$35,000	140%
BMW	5-series	$78,000	$45,000	173%
Average				163%

Sources: Vietnam: Lan, 1997; USA: author estimates based on Boston Globe, July 20, 1998.

Table 18. 1997-1998 Price for Used Toyota Camry Imported to Vietnam Compared with USA Prices (US dollars)

Used Toyota Camry	Price in Vietnam	Price in USA	Vn Price % of USA
1997	$55,000	$18,000	306%
1995-1996	$44,000	$14,000	314%
1994	$38,500	$10,000	385%
1992-1993	$28,000	$7,500	373%
1987-1991	$17,000	$5,500	309%
Depreciation over 6 years	$27,000	$10,500	

Sources: Vietnam: Lan, 1997; USA: author estimates based on Boston Globe, July 20, 1998.

7. RECOMMENDATIONS FOR A MORE COMPETITIVE VIETNAMESE AUTOMOTIVE INDUSTRY

In order for rapid economic development to take place in Vietnam, the Vietnamese state must take the difficult step of quickly and aggressively embracing international industrial cooperation and investment. There is simply no other way to upgrade Vietnam's production base to world standards in terms of price, quality, and delivery. The managerial and technical know-how required exists in companies based in countries outside of Vietnam. If the Vietnamese economy is to improve, the lessons learned on the outside must quickly be absorbed. One of the most important of these lessons has been the importance of low prices, high quality, timely delivery, and attentive service. Advanced production, logistics, and transportation technologies are deployed specifically to achieve such goals. Today, leading manufacturing companies have global operations, set low worldwide prices, measure defects in parts-per-million, guarantee worldwide delivery in a matter of days, and stand behind their products for years. Another important lesson is that global economic structures are growing in importance relative to national economic structures. International finance, trade, and investment flows are growing far faster than national economies, indicating that the world is becoming more economically interconnected over time.

But there is a difference between liberalization of rules regarding industrial cooperation and investment and those regarding trade. In fact, the erection of trade barriers has long been an effective tool to stimulate FDI, as long as an attractive market existed. Given Vietnam's membership in ASEAN, and by extension the coming ASEAN Free Trade Area in 2003, the ability to use of tariff and non-tariff barriers to stimulate FDI will erode quickly, despite the country's large market. Inter-ASEAN industrial cooperation and trade will be difficult if Vietnam's industrial base has little to offer in terms of expertise or unique products. Vietnam should use trade barriers while it can, while also aggressively moving toward the new regime of international industrial cooperation that is arising in ASEAN and beyond.

There are good examples of industrial upgrading strategies that use borrowed technology to create a upgrade a protected domestic industry that sells locally at first and then grows through export. Such an "export-led" development strategy was successfully pursued by Japan, Korea, and to a lesser extent, by Taiwan. The level of inward FDI in these countries has been extremely low, which is extraordinary given their large size and the high volumes of outward FDI. However, countries that have grown more recently, such as Singapore, China, and Thailand have pursued industrial upgrading strategies based largely on attracting FDI (in this case exports are driven by foreign investors, a fact that mitigates the political risk associated with exporting).

So, such “network-led” strategies have also been successful. Which path should Vietnam take, export- or network-led development? Compared to export-led strategies, network-led development carries a greater risk of speculative over-extension (as pointed out in Section 4.4). On the other hand, it is likely that network-led strategies can result in more rapid development than export-led development. A network-led strategy makes particular sense in a world economy that is increasingly interconnected and hostile toward the protection of local markets. Looking to past successes for models for current action, while a rational course of action, does not always result in the best policy given contemporary circumstances. Current intelligence on industry and market should be gathered. Two very different countries which have faired the Asian economic crisis quite well are Singapore and China. Perhaps it is to the policies driving the growth of these countries, rather than to hose of Japan or Korea, that Vietnamese policy-makers should turn for models of economic development (on the other hand, it is important to note that despite the similarities between China and Vietnam, China’s vastly larger potential market provides a uniquely powerful magnet for FDI).

7.1 The Need for Consistent and Transparent Policy

In the course of the field interviews, managers at several automakers complained about the instability of Vietnamese policy regarding the automotive industry. As one manager put it “I care less what the policy is than if it is consistent.” Automakers must plan investments, new model introductions, capital improvements, and the like over the long term. A stable and clearly articulated policy environment is crucial to this planning process. A shifting policy environment adds uncertainty to an already volatile business setting. Faced with too much uncertainty in Vietnam, companies will choose to locate new factories in other locations.

Similarly, ASEAN and WTO will certainly react negatively to unclear and unstable policies regarding tariff and non-tariff barriers.

7.2 The Need for Motorization

If the automotive industry is to develop, the basis for all aspects of “motorization” must be vastly improved. Roads, bridges, highways, petrol distribution, vehicle sales and service, local government apparatus to regulate the use of vehicles (e.g. traffic police, vehicle registration), and driver training programs must all be in place to support the use of motor vehicles in Vietnam and thus the growth of the domestic automotive industry. Today, such infrastructure is poorly developed and what does exist does not function very well. A motorization policy for Vietnam will need to include a broad array of programs, laws, government agencies, and commercial enterprises, and overall coordination of the policy must be undertaken at the top levels of government. The specific recommendations in this section address some of the most pressing issues, but fall far short of a comprehensive motorization policy.

7.2.1 Improved infrastructure

Even with one of the lowest market penetration ratios in the world in terms of people per car (950, see Table 10), Vietnam's road, street, and highway infrastructure is in such poor condition that it is already reaching the limits of its carrying capacity. Traffic flow problems are already acute in Hanoi, Ho Chi Minh City, and the roads and highways connecting the country's larger cities. The problems stem from a lack of adequate roadways, traffic control technology, and driver training. Vietnam's infrastructure suffered from lack of investment during wartime and under the US embargo, which blocked multi-lateral funding for large projects. Infrastructure problems, along with low incomes, help to explain the popularity of motorbikes in Vietnam, because motorbikes require less in the way of roadways, traffic control, and driver training.

Work should be accelerated on a north-south "super-highway" to provide the transportation backbone for Vietnam. Given the unique shape of Vietnam (long and narrow), a central transport corridor could quickly solve many long-distance transport problems. Vietnam's highway system could consist of a simple vertebrae design, with branch corridors extending east and west from the central artery. Long-distance infrastructure projects in other places have succeeded by building two very separated sections at the outset, then seeking additional funding two connect the two.

The design of such infrastructure is of great importance for Vietnam. Not only does such infrastructure structure the location of future economic activity, but the choices made at the outset can set the urban character of the country (the urban and suburban sprawl of Los Angeles is due in large part to the dominance of passenger vehicles as a transport mode). Although motor vehicles are by far the most popular modern mode of personal transportation—mainly because people want the flexibility that passenger cars provide at the destination-end of their trips, well designed mass transit systems, such as busses and trains, have been used very successfully in many places. It is not too early for Vietnam to consider and plan for alternatives to automobiles. The most successful urban transit systems are mixed-mode systems that creatively blend mass transit systems with private motor vehicles, bicycle paths, and pedestrian walkways. Copenhagen provides a good example.

7.2.2 Sales and distribution

Although automakers have traditionally sold vehicles through exclusive dealerships, there is a trend toward “mega-dealerships” that offer many brands of vehicles. The establishment of mega-dealers in Vietnam would reduce the cost of and decentralize (away from the automakers) the investments needed to establish a dealership network in Vietnam. As long as there are several to choose from, mega-dealers can increase retail competition because consumers can compare models from several automakers in one showroom. Thus, consumer decisions can be based on the characteristics of vehicles and not on the sales tactics of single-brand dealers.

Internet shopping is an even more recent trend in automotive distribution. Web sites run by mega-dealers, automakers, or specialized brokers can be created to take customer orders on-line and transfer them to the local factory, where the vehicles is “made to order” to the exact specification desired by the customer (e.g. vehicle color and options). Most consumers still want to initially drive a vehicle similar to the one they will own, so Internet shopping cannot wholly take the place of dealerships where customers can take test drives, but computer-based shopping can be an informative first—or last—step for consumers.

7.2.3 After-sales service.

Very little infrastructure currently exists in Vietnam for after-sales service, such as repair shops and wholesale and retail parts outlets. All automakers currently active in Vietnam, to some degree, are trying to address this problem by establishing service centers in Vietnam’s major metropoles and stocking replacement parts at their factories. For example, Toyota has established nine “authorized service centers” in Vietnam, some as locally-owned franchises that use Toyota-trained technicians and Toyota-recommended equipment, some that are wholly-owned by Toyota, and some that are at dealerships. It would be far more efficient if these functions were taken over by third-party companies that could repair and sell parts for a several automaker’s brands. In other countries, such third party “international auto repair shops” and “international parts outlets” are quite common, although exclusive brand dealerships usually do have on-site repair facilities and parts sales as well. To improve the infrastructure for repair, shops with the capability service a range of vehicle brands should be encouraged, perhaps differentiated by type of vehicle, such as commercial and passenger.

7.3 The Possibility of Rationalization

It is possible, perhaps even likely given the Asian economic crisis, that some automakers currently operating in Vietnam will withdraw. All automakers and licence manufacturers in Vietnam are committed to staying in Vietnam for the long term. However, lack of profitability in Vietnam leaves the existing plants extremely vulnerable to divestment, especially during a crisis, which can trigger leadership and ownership changes that can quickly change a company's plans. The recent announcement that Daimler-Benz intends to acquire Chrysler is evidence that mergers and acquisitions can take place among even the largest firms. In many ways, it would be better if some automakers did withdraw from Vietnam. Competition to improve consumer prices and choice can always be made by allowing imports of CBUs. Fewer automakers would mean better utilization of plant and equipment and more efficient economies of scale for the remaining firms. It is likely that the Vietnamese government will need to make no efforts to reduce the number of automakers active in the country. Some attrition will likely occur. The far greater danger is that too many automakers will withdraw, reducing the attractive force for FDI from first tier suppliers.

7.4 The Next Step: Building the Supply Base

It is imperative that steps be taken—by the automakers and the Vietnamese state—to increase the market for domestically manufactured vehicles and to increase local parts supply. It seems that the need to develop the supply-base is well understood by Vietnamese policy-makers. However, the current efforts appear to lack specific plans to tackle the problem. Because of the small size of the Vietnamese market, only those suppliers that require labor-intensive assembly and can export to other locations have an immediate incentive to locate plants in Vietnam.

Unfortunately, there are few automotive components that still have a high labor content. Wire harnesses are the premier remaining labor intensive automotive component. Because they do not need to be sequenced with vehicle production, wire harness assembly is usually consolidated in low labor cost locations such as Mexico and the Philippines. In fact, two of the three foreign suppliers active in Vietnam, Yakazi (Japan), and Sumitomo (Japan), are engaged in the assembly of wire harnesses for the local and export markets (the third foreign supplier, Takata (Japan), is assembling utility truck seats for the local market). Although wire harnesses are a "natural" specialty for Vietnam, competition in ASEAN is fierce for such facilities from countries such as the Philippines, Indonesia, and even Myanmar. Seats, which still do have a relatively high labor content, sometimes need to be assembled close to final assembly plants in order to match the sequence of seat colors with the vehicle body colors in production (this need is less for commercial vehicles).

One local content rules are and trade policies are set to provide the maximum incentive for firms to locate production in Vietnam, a two track strategy should be pursued to build the supply-base as follows:

A two-track firm recruitment strategy to build the supply-base:

1) Attract global first tier suppliers

- Conduct market research on the global industry.
- Identify leading suppliers.
- Target specific firms.
- Connect target firms with an industry association.
- Offer incentives to target firms.

2) Build the domestic second tier supply-base

- Conduct market research on the Vietnamese supply-base.
- Identify leading suppliers.
- Target specific firms.
- Connect target firms with an industry association.
- Offer incentives to target firms.

7.5 The Need for Regional Cooperation

Within five to seven years, the ASEAN Free Trade Association (AFTA), of which Vietnam is a participant, will begin the transition to 0% tariffs for inter-ASEAN trade. This should signal a two-track policy response from Vietnam. First, local content rules aimed at building the supply-base should become more aggressive during the pre-AFT A period. The opportunity to use localization rules to build the industry is short-lived, and Vietnam should take maximum advantage of that opportunity. At the same time, the complementarity schemes that will underlie AFTA, such as AICO, should be a central preoccupation for Vietnamese policy-makers. Vietnam should actively participate in AICO and AFTA negotiations in preparation for the less restrictive trade regime that is coming. Vietnam should decide on several specializations with the ASEAN automotive component supply-base and aggressively pursue capabilities and FDI in those areas. Automotive electronics (which could overlap with other electronics sectors), seats, wire harnesses, batteries, and fuel tanks are all reasonable candidates for specialization.

8. CONCLUDING SUMMARY

Currently, eleven automakers are active assembling passenger cars, sport-utility vehicles, utility vehicles, passenger vans, and freight trucks in Vietnam. Because of the small size of the Vietnamese market these assembly plants are operating far below capacity. Vietnam lacks of a local parts supply-base of any kind; all vehicles must be assembled from kits of parts sourced from outside Vietnam. As a result, it costs automakers approximately twice as much to assemble a vehicle in Vietnam than it does in the automaker's home country, despite far lower labor costs in Vietnam. Automakers must charge higher prices for finished vehicles, absorb the operating losses at the corporate level, or both. The lack of profitability will likely lead to some Vietnamese assembly plants to close.

The central recommendations of this report are for the government, in cooperation with the automakers, to invest in infrastructure and other programs to facilitate motorization, seek investment from foreign first tier suppliers, and assist in the creation of the local second-tier supply-base. Specific first tier suppliers should be actively recruited and offered generous incentives to locate production in Vietnam. These firms should be chosen in cooperation with existing automakers, who should be encouraged to share local suppliers to the extent possible to increase supplier scale economies. Promising local firms should be encouraged to become second tier and material suppliers to the new first tier suppliers who come in. Requirements for foreign investors to have local partners should be dropped, and those foreign firm in existing joint ventures should be provided with an exit strategy. In the short window available before AFTA implementation, trade barriers for CBU's should be set as high as possible given current agreements, and localization requirements should be increased. At the same time, import tariffs and consumption taxes on locally manufactured vehicles should be dropped as near to zero as possible. Finally, Vietnam should aggressively pursue regional cooperation schemes, such as AICO, to lay the groundwork for AFTA implementation.

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APPENDIX

Table A1. Top Thirty Automotive Parts Suppliers, 1995

Home Country	Company	World Rank	1995 OEM Sales, $M
USA	Delphi Automotive Systems (GM)	1	26,400
Japan	Denso	2	15,000
Ger	Robert Bosch	3	14,200
Japan	Bridgestone/Firestone	4	12,500
Japan	Aisin	5	11,587
USA	Visteon (Ford)	6	9,200
USA	TRW	7	6,100
USA	ITT Automotive	8	5,600
USA	Delco Electronics (GM)	9	5,400
Japan	Yazaki	10	5,000
France	Valeo	11	5,000
USA	Dana	12	4,966
USA	Lear	13	4,707
UK	Lucas Automotive	14	4,700
USA	Johnson Controls Automotive Group	15	4,420
USA	AlliedSignal Automotive	16	4,119
Germany	BASF	17	4,000
USA	DuPont Automotive	18	3,500
Canada	Magna International	19	3,223
USA	Rockwell Automotive	20	3,121
USA	United Technologies Automotive	21	3,060
USA	Chrysler Component Division	22	2,700
USA	Inland Steel	23	2,513
UK	Benteler Industries	24	2,400
USA	PPG Industries	25	2,050
USA	Goodyear Tire and Rubber	26	2,000
Ger	Siemens Automotive	27	2,000
USA	American Axle & Manufacturing	28	1,967
USA	The Budd Co.	29	1,800
Japan	Takata Corp.	30	1,800

Source: Automotive News: 1996 Market Data Book

Table A2. Geographic Clustering of Passenger Vehicle Assembly Plants in Big Emerging Markets.

Firm	Country	City	1995 Production
Ford	Brazil	Sao Bernardo	212,000
General Motors	Brazil	Sao Bernardo	9,500
Toyota	Brazil	Sao Bernardo	4,500
General Motors/Suzuki/Isuzu	Colombia	Bogota	38,000
Hyundai	Colombia	Bogota	2,000
Mazda	Colombia	Bogota	25,500
General Motors/Suzuki	Ecuador	Quito	6,000
Mazda/Mitsubishi	Ecuador	Quito	5,000
Suzuki	Ecuador	Quito	8,000
Isuzu /Astra Group	Indonesia	Jakarta	8,146
Toyota /Astra Group	Indonesia	Jakarta	75,512
Daewoo	Indonesia	Jakarta	2,456
Honda/Prospek	Indonesia	Jakarta	5,400
Mitsubishi/Krama Yudha	Indonesia	Jakarta	20,908
Nissan	Malaysia	Kuala Lumpur	21,430
Proton	Malaysia	Kuala Lumpur	9,177
Suzuki	Malaysia	Kuala Lumpur	6,604
Ford	Malaysia	Kuala Lumpur	9,414
Ford/Mazda	Malaysia	Shah Alam	8,079
Proton	Malaysia	Shah Alam	148,823
Renault	Malaysia	Shah Alam	0
Toyota	Malaysia	Shah Alam	24,544
Ford	Portugal	Setubal	190,000
Renault	Portugal	Setubal	25,327
Volkswagen	Portugal	Setubal	41,201
Chrysler	Thailand	Bangkok	856
Peugeot/BMW	Thailand	Bangkok	7,500
Volkswagen	Thailand	Bangkok	300
Chrysler	Venezuela	Valencia	4,000
Ford	Venezuela	Valencia	20,500
General Motors	Venezuela	Valencia	28,050
Honda	Venezuela	Valencia	500
BMW	Vietnam	Hanoi	31
Daihatsu	Vietnam	Hanoi	0
Mazda/Ford	Vietnam	Hanoi	1,119
Renault	Vietnam	Hanoi	148
Toyota	Vietnam	Hanoi	0
Average 1995 Production			25,526

Source: International Motor Vehicle Program's Global Assembly Plant Database (based on data from Automotive Industries