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Seeds of Destruction: The Decline and Fall of the US Car Industry

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Abstract

Japanese car makers were able dramatically to expand their share of the US car market in the seventies and eighties. This was partly the result of their own efforts and partly fortuitous. This paper examines why the US car makers of this period were vulnerable and how the Japanese were able to exploit their own technical and organisational strengths. An understanding of this key period in the history of Detroit's 'Big Three' indicates why some two decades later the US companies found themselves on the brink of corporate ruin.

JEL Codes: L21; L22; L62

Keywords

Car manufacturing; Japanese production systems; cost efficiency; flexibility, vertical integration, US automobile industry.

1. The Past is Prologue

> It has been said that though God cannot alter the past, historians can; it is perhaps because they can be useful to Him in this respect that he tolerates their existence. (Samuel Butler, *Erewhon Revisited*)

The origins of the near collapse of the US car industry in 2009 can be traced back to the seventies and eighties. This period's *deus ex machina* arrived in the form of the first oil shock, bestowing a golden opportunity upon Japanese carmakers. Fortunate in having developed the right mix of cars and organisational structure, Toyota, Nissan, Honda and the rest were able dramatically to expand their share of the American market, forever changing the face of the US car industry.

This article examines why the US carmakers during this period were vulnerable and how the Japanese were able to exploit their own technical and organisational strengths. An understanding of this key period in the history of Detroit's 'Big Three' reveals why more than two decades later these companies

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found themselves on the brink of corporate ruin. Unfortunately, despite persistent setbacks, a succession of corporate executives failed to draw the appropriate conclusions from a continued series of shortcomings. Instead, General Motors and the others seemed mesmerised by past formulas of success. Instead, events of the seventies sent a behemoth like GM on a trajectory leading to its recent, near death experience.

The problem lies in the US car industry's pursuit of a more obvious and pressing objective to the detriment of a less apparent, or at least, less demanding, one. Efficiency, in the evolutionary sense of being finely geared to a particular business environment, is almost by definition time and place specific. Given that the longevity of such an environment must inevitably be uncertain, competition will tend to lead firms to heavily discount the future. In the battle for market share, corporate focus centres on heavily exploiting current opportunities if firms are to survive and succeed in the short run. This strategy will lead such organisations to lose the ability to respond to unanticipated economic changes (shocks). The result of competing in uncertain environments then is an observable herd-like behaviour, with corporations chasing each other's strategies.

In boom times, a firm will perpetually double down its bets on successful strategies until it is essentially staking its survival on the continuing existence of an economically conducive environment. In the aftermath of the recent financial crisis, it has been easy to identify this trend, which led financial firms to trade off the flexibility to adapt effectively to change for a short run, but very profitable, form of efficiency (closely aligning itself to the prevailing environment). Many of these financial organisations became increasingly overextended by assuming that the price of assets on which these derivatives depended, such as houses, could only continue to rise. Without an expanding market for these complex financial products, the whole structure came crashing down. Financial markets had become closely tied to a very narrow set of fortuitous circumstances.

Though less dramatic, the near collapse of Detroit's car industry, including the bankruptcy and government bailout of General Motors, once the glory and bulwark of American industry, reflects much the same story. The firm's ability to survive came to be overly dependent on a specific market context. To understand the origins of the persistent failures that define some forty years of the US car history, one would best look back to the first post-war crisis in the seventies. This unambiguous wake-up call to an overly complacent industry would turn out to be only partially heeded at best.

At the very start, we need to make clear a key distinction between the occasion for the difficulties of the US automobile industry and the cause of them. Thus the focus of this article is only on firm-internal 'seeds of destruction'. We bracket out significant contextual factors, such as the different contributions of the state to the automobile industry in post-war Japan and the US. Any unanticipated change in the prevailing economic environment will create unwanted problems for firms competing and operating in that milieu. Our analysis is of the ability of a firm like General Motors to deal with external shocks, whether

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these be a financial crisis, a sudden rise in oil prices, drastic shifts in exchange rates, or any other such event that forces a potentially rapid and costly adjustment. Using this perspective, the cause of General Motors' bankruptcy lay not in the repercussions of the severe financial shock but in the company's overextended position that left it incapable of responding adequately. This was a self-induced vulnerability.

2. The Reckoning: Failing to Learn from One's Mistakes

> Success has ruined many a man (Benjamin Franklin)

For Detroit's 'Big Three' (General Motors, Ford, Chrysler), the first serious challenge to their domination of the US domestic market came with the Japanese invasion that followed the first oil shock of the seventies. US carmakers could have seized this challenge as an opportunity to restructure and change the way in which they did business. Instead, they used the size of their operations as a bargaining chip to lever protection from the federal government. Ostensibly this temporary pardon from the rigours of competition would provide management with the breathing space needed to initiate and develop changes required to match Japanese skills and abilities. Although a generation of jobs may have been saved by the political decisions made by the Reagan Administration, the granting of a virtual blank check to carmakers at that time allowed these Detroit based goliaths to subsequently avoid and dodge the ultimate market requirements of efficiently building cars customers wanted to buy. To understand how the American car industry ended up in such dire straits we need to comprehend how these corporations finessed, rather than attempted to resolve, their first serious challenge.

3. On the Eve of the Invasion: The GM Empire

> What I fear is that no matter how well things are going now there is no guarantee that they will continue to go well forever', says Honda. 'In this changing world it is odd to decide everything for the future at this point in time. If a decision is left open, one can be flexible to future changes. (Sakiya 1982: 188)

An industry wedded to a specific environment is bound to be vulnerable. The only real degree of flexibility Detroit possessed in the post war period lay in a command over vast physical and financial resources stemming from its control of the US market. When more carefully examined, only General Motors was truly exempt. The smallest of the three, Chrysler, barely scraped by, its fortunes rising and falling with the booms and slumps of the national economy. Throughout the sixties, a new set of revitalised competitors was at America's gate, clamouring to be let in. It would only take the right sequence of events for foreign imports to scale what proved to be largely illusory fortifications.

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Table 1: Imported Cars (US)

Year	Sales	Market Share
1953	2,927	0.51 %
1963	385,624	5.10 %
1973	1,776,900	15.20 %
1983	2,385,734	27.54 %
1987	2,265,500	31.10 %
2001	2,167,418	25.01 %
2006	2,413,660	29.68 %
2007	2,432,687	29.85 %
2008	2,365,697	33.59 %
2009	1,924,149	33.80 %

Source: Automotive News — Annual Reports

From being an oddity in post war America, imported cars were somewhat more noticeable by the late fifties and early sixties, but not until the seventies would foreign cars pose a definite threat (Table 1). Until that time, foreign competition affected the decisions of domestic manufacturers only tangentially. From the seventies on, slipping market share would start to alter Detroit's perception of the US car buyer, though at first only gradually.

Indeed, the seventies seemed intent on making up for the utter predictability of the previous decades. Detroit stuck with what in previous years had produced reliable profits. Unfortunately, given the changed environment, this strategy only resulted in producing too many unwanted cars. Belated attempts to find the combination of technology and organisational structure with which to satisfy this new competitive marketplace would frequently prove to be at best inadequate. No individual corporation was to be quite as far off the mark as GM, perhaps because no other carmaker had grown quite so large and successful. Size can provide a firm with the luxury to avoid learning from its past mistakes.

4. Detroit's Achilles Brake Shoe: Detroit's Vulnerabilities

> "Our best competition in General Motors against that car (Plymouth Reliant) right now happens to be a two-year-old Buick", Mr. Smith responded. "You'll get better value for that than you will (from) the new Chrysler at that price". Some GM executives winced (*Wall Street Journal* 16 January 1988: 7).

The seeds of Detroit's problems lay in continuing to believe that it knew what the US public wanted. Years of post war profits seemed to prove this supposition correct.[1] In such a predictable environment small consideration needed be given to providing for flexibility.[2] Competition was largely limited to style, but even here differences narrowed. Large deviations from the prevailing standard set by GM led to defeat. Ford's attempt in 1957 to break away from this pattern with the Edsel nearly sank that corporation. With a loss of $300 million from this venture, only a revived economy following the 1958 recession pulled Ford through (*Automotive News* 1987). This induced an even more pack like mentality among the domestic carmakers.

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Despite their massive size, American manufacturers were strangely vulnerable, being dependent on ever increasing volume. Such expansion assumed a continuing stable environment favourable to their endeavours. This meant that any economic downturn, when it occurred, would need to be of short duration. In the saturated US market, many factors could combine to slow down the demand for new cars. General Motors however needed not only continued dominance over its market but also a continued dominance over a growing market. Rising volume allowed GM to pursue its own planned regime of cost efficiencies without needing to worry about flexibility.[3]

The success of the whole operation demanded significant and dependable cash flow. It was clear in the post war era that this imperative inevitably translated into the practical demise of the stripped down (low price) car. Each year more and more accessories found their way onto each car sold.[4] In effect, there was a deliberate abandonment of what might be termed the cheap end of the market in order to literally jack up revenue:

> If GM has said it once, it's said it a thousand times: A good used car is the answer to the American public's need for cheap transportation (Rae 1980: 31).[5]

The 'Big Three' carmakers never really learned to make small economy cars. There seemed no point in doing so. All their attempts appeared noticeably half-hearted. In Detroit's view, a small car was an attempt to sell in the second car market.[6] Basic transportation implied a low profit margin. Even when the manufacturers were roused to compete by offering the Corvair, Falcon, or Valiant, these cars soon became loaded down with options. Attempts to fight back with such captive imports as GM's German Opel, Chrysler's French Simca, or the English Ford, never were wholehearted. Dealers saw no reason to push these low margin cars. Detroit would always scorn small cars and their buyers, as though large corporations felt uncomfortable dealing with the type of people who were willing to drive Volkswagens, implicitly dismissing them as cranks. But though the initial success of the Germans and the subsequent triumph of the Japanese is a fascinating story, our purpose here is to demonstrate how submerged problems involving a neglect of flexibility and a heedless pursuit of cost efficiency created the possibility for this foreign success. Pursuing and achieving volume to gain cost efficiencies eroded the ability of Detroit carmakers to respond to unanticipated change and levels of demand. Unexpected events both exposed vulnerabilities and created opportunities. This is not to under-rate the difficulty of Japan's subsequent accomplishments. In 1963 the US produced nine times the number of vehicles that Japan did. By 1980 Japan had become the world production leader, a position it has not since relinquished. An annual growth rate in vehicle sales of 14 per cent between 1961 and 1981 cannot be dismissed as the mere luck of the draw. Only the determined application of a well executed strategy enabled Japan to find itself in a position from whence it could succeed (Cusumano 1985). But Japanese manufacturers were following the only sensible path available when lightning struck. Fortunately for them, they had had

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a number of years in which to refine a structure that would turn out to be the right one for this new era.[7]

Strategically, carmakers may either lower their cost structures and/or expand production, but by doing so they may lose a degree of flexibility. To understand this, it is best to view firms from an operational standpoint. Looked at from this angle, maintaining a sufficient level of cash flow becomes the dominating principle. Commitments to a variety of constituents such as suppliers, shareholders, employees, lenders, all enable firms to secure the array of services required for them to function.[8] Sales generate the cash flow that facilitates the fulfilment of these essential commitments. A disappointment in sales volume can equate to a failure to meet the range of commitments and a need for contractual renegotiations. Volume is built upon a rising sea of commitments and thus a more costly task of adjustment if sales fall short of anticipated levels.[9] This translates to trading off a degree of flexibility for greater volume efficiency. Unilaterally shifting the costs of any necessary adjustment onto a firm's more vulnerable constituents comes at the cost of deteriorating relations between the firm and these constituents (such as suppliers or dealers). Given an unexpected change in the economic environment, these shifted costs may come home to roost.

Ultimately, what most undermined Detroit's pre-eminence and left it potentially vulnerable was the effect such cost squeezing had on its buying public. The trust between a firm and its public is sometimes an undervalued source of flexibility which buys an errant corporation time to adjust. Name brand products are the equivalent of owning a cash annuity due to this element of trust. Each year brings with it a predictable flow of cash. By squeezing constituents such as suppliers and dealers, and achieving cost efficiencies by cutting corners, Detroit managed to change the public perception of their product. The long years of building up a reputation were dissipated over the span of a decade. Believing that customers would continue to buy family sedans made by Detroit no matter what, US carmakers virtually ceased to innovate and stopped believing in the value of building a perceived quality product.

> As the drive for pure volume became the obsession of the domestic manufacturers (in the seven boom years between 1958 and 1965, domestic sales more than doubled from 4.2 million to 8.7 million). The motivation, much less the ability to maintain quality or customer satisfaction became secondary (Yates 1983: 229).

The drive to capture increasingly elusive cost efficiencies forced firms to expand to the limit of their capabilities. Expansion allowed them to maintain market share and hence insure the levels of cash flow needed to appease all relevant constituent groups. But, this was accomplished in part by lessening corporate flexibility. Expansion involved a broadening of commitments which tied these US manufacturers to an increasingly narrowly defined environment.

> Yet the fact that the companies were operating always so near the limits of (plausible) market saturation made them especially vulnerable to changes in the national economy. Auto sales suffered early in each post war recession (Rothschild 1974: 42–43).

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To GM, flexibility became trivialised once it was equated with merely adopting timely styling changes. Reshaping a grille was well within their capability. The need for such pseudo flexibility recognised a given random variation prominent in consumer tastes. But adjusting to significant economic shifts is another matter. Further, such style changes coupled with then standard production line techniques effectively throttled competition. To justify the cost of retooling, model sales needed to approach some 200,000 vehicles at a minimum. The resulting capital requirements discouraged any would-be competitors from entering the industry and made for generally conservative behaviour. Engineering innovations remained more of a variation on the same theme than any discernible departure from accepted norms. Again, the cost of a radical change was too great and the associated risks were too high to make it past the blue pencil mob of accountants that acted as a brake on such activity. For example,

> … [T]he finance people were formidable foes … The Mustang, they now declared, would diminish standard volume. Standard volume had become the sacrosanct figure within the company, the base sale from the previous year, in effect what Ford was already guaranteed without spending an additional penny. That choosing this figure as their base was an enormously limiting concept, locking them more and more into the past, seemed not to matter. For them it was the ideal number, for it guaranteed profit without risk (Halberstam 1986: 366–367).

Over an extended period, the quest for volume boxed in the carmakers. Either they had surrendered the ability to shift some of the adjustment costs onto a group or groups of constituents, or they had already squeezed that group or groups of constituents near to the limit:

> The assurance that all firms would pay the same price for labour let managers grant generous increases with no fear of handing competitors a cost advantage. The dearth of serious foreign competition had long blunted consumer resistance to the resulting price increases. Every three years, when contracts came up for renewal, the union leadership targeted the firm most vulnerable to a strike and least inclined to parsimony. Negotiations with the target company set the scale the other companies would be required to match (Reich and Donohue 1985: 123–124).

Since volume and work stoppages are antagonistic elements, bribes in the form of wage increases acted as the lubricant enabling plants to keep spitting out cars. With low national unemployment rates underlining the carmakers' need for continuous cash flow from operations, firms slowly lost their leverage over production workers. Given this rising constraint, Detroit locked its corporate strategy into a dependency on an ever increasing volume. Lacking a labour component that could be easily squeezed, cost efficiencies came chiefly to be found by pressuring suppliers and reducing quality concerns.

Outside contractors remained in a very tenuous position vís a vís these major firms. The loss of a contract could often spell ruin for these suppliers. Car companies therefore squeezed harder, playing one off against another. Multi-sourcing forced competing suppliers to underbid dangerously. Often the result

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was shoddy quality. But in the rush to maintain volume, such discrepancies were not only overlooked but inevitably found their way into the finished product. GM demanded innovation from these suppliers but were given to expropriating the results by subsequently turning production over to in-house divisions. This neatly diluted any incentive to explore innovative solutions.

Adversarial relationships characterised these car firms' dealings with their constituents. Holding a dominant position in the market place, carmakers used their strength to gain cost efficiencies at the expense of suppliers and others. That was after all one of the prime motivations in achieving market dominance in the first place. Unanticipated adjustments could be shifted and borne by other groups of constituents. But their ability to gain efficiency in this manner without paying attention to any corresponding loss in flexibility depended on a continuing volume pre-eminence:

> The structure of auto prices, from factory to showroom, is based on the harshest principles of internal competition. Dealers compete to fulfil manufacturers' objectives, under the threat of sanctions and the promise of incentives. The dealers in turn offer incentives to their own salesmen who operate under the constant pressure of bonuses, exhortations, and mutual rivalry (Rothschild 1974: 83).

Cars that did not work ended up in the possession of people who did not particularly want them. Past success had bred overconfidence, a nanny-like sense of knowing what was best for the American consumer. Because of this attempt to achieve volume efficiencies by overextending a given level of organisational and technical know-how, quality deteriorated. As manufacturing defects mounted, owners increasingly returned to the dealerships for warranty work on their unwanted cars. But manufacturers were reluctant to reimburse dealers for such work. When they did, it was at cost, allowing dealers no profit on such transactions. Squeezing dealers for cost efficiencies in this manner translated into breaking trust with the public. But not only did it leave customers disaffected, such cost efficiency behaviour also alienated the dealers as well as undermined their financial stability. A weakened dealership network would be less able to bear adjustment costs during adverse economic times.

Under a regime of volume efficiency, suppliers provided shoddy components to an assembly line manned by antagonistic workers who had little incentive to do anything but push cars through.[10] Corners were cut in invisible places that consumers would notice only after a few years' use. These forlorn cars were rammed down the throats of dealers who in turn rammed them down the throats of slightly stunned consumers.[11]

Over the years, General Motors had steadily accumulated a large fixed investment in a particular productive structure. To fully utilise this investment, and by doing so gain cost efficiencies, GM was willing to strain constituent relations. In addition, the necessary bureaucratic system created to take full advantage of a particular, stable economic environment resisted all changes and sought self-perpetuation instead. The strength of any bureaucracy lies in a repetition

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of past activity. Corporate personnel were thus united in their attempt to create a predictable environment of agreeably increasing sales volume.

This disregard for constituent claims combined with an eroding public faith allowed an opening for governmental action in terms of safety, environmental, and later fuel efficiency requirements. Because of a mistrust of these car manufacturers, federal demands were severe, the belief being that change would come only by holding carmakers' collective feet to the fire. But even such regulations, though costly, could, since uniformly applied to all firms, be largely passed on to the buying public. Provided that is, Detroit maintained its position of dominance in a predictable market. Otherwise, car manufacturers would face meeting these new commitments with lowered and/or insufficient cash flow.

5. The Japanese Strategy: Seizing the Moment

> This process of Creative Destruction is the essential fact about capitalism. It is what capitalism consists in and what every capitalist concern has got to live in. (Schumpeter 1975: 83)

Strategies develop out of a combination of chance and necessity as much as through any powers of inspiration. The Japanese road to success was available to other foreign competitors in the sixties. That they alone substantially triumphed in the US is to their credit. But although Toyota, Nissan, and the rest seized and expanded a market Detroit had more or less abandoned, it was the sudden shift in the economic environment of the seventies that promoted Japanese goals. Without such a shift it is questionable whether these firms would have progressed past a level of continued moderate success. These carmakers had carefully developed a technology and organisational structure attuned to the constraints under which they operated. Some twenty years of experimentation saw the system running smoothly. This did not altogether differ from the approach Detroit took some forty years earlier.

The marketplace smiled on the Japanese and frowned on Detroit. An oversimplification, but it is clear that neither side anticipated the changes that would promote one strategy over the other. For the reasons already presented, US carmakers were extremely vulnerable to a competitive challenge. Equally true, their own actions had eroded their dominance and left them increasingly rigid in their response to unmanaged change. Even under more favourable conditions, such minor slippage is almost inevitable in the fact of a determined challenge. More serious vulnerability results if sustained success has inhibited a firm's ability to adjust to unanticipated change. It may dream instead of repeating past victories. The question still remains whether the Japanese car firms were not as equally dependent on a specific economic climate as Detroit was. Were these newly crowned champions of manufacturing efficiency any more flexible than the ex-heavyweights?

Entry into the US market, highly limited in the immediate post war period, was restricted to the very top or very bottom of the price market. No foreign competitor aimed for the heart of US carmakers' strength. The hope was to fill the gaps largely ignored by Detroit. But while Europeans could attempt

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to sell at the top end of the market, the only option open to a technologically limited and a capital restricted Japan in the fifties was the small, cheap vehicle, the second car market. The physical topography of Japan and initially its lack of paved roads made development of any but small cars foolish. Its first post war passenger vehicles were only a crude body mounted on a truck chassis. A booming and largely captive home market helped Toyota and Nissan achieve the volume efficiencies needed for any serious export drive.[12] The home market not only provided the cash flow necessary for expansion but also served as a testing ground for the reliability and overall quality of various models prior to their introduction abroad. In this way, increased certainty allowed Japanese firms to operate with a smaller margin of error. The certainty of this expanding home market translated into both the necessary cash flow and the inclination to make long term commitments in terms of capital investment. By innovating, they were able to enjoy the lower cost structure associated with an increase in organisational and technical know-how. Such a strategy implemented in a non-saturated home market, permitted both increased volume and greater profits. Perhaps the major distinction between Japanese carmakers and their US counterparts some thirty to forty years before was that the former seemed somewhat more inclined to blend into their economic surrounding rather than trying to transform that environment. Necessity was turned to an advantage.

The literature on Toyotism has been well canvassed elsewhere, and it is outside the scope of this article to review the debates over lean production (for a 'genealogy' of the concept in the US, see Holweg 2007). The concept of smooth-flowing value-delivery, based on inventory-reduction and smart (error-detecting) automation, was popularised in the US through the Massachussetts Institute of Technology (Krafcik 1988; Womack, Jones and Roos 1990; for a critique see Berggren 1993). Arguably, however, the over-analysed *kanban*, or just-in-time inventory system, had more to do with geography than planning.

> Because transportation was relatively slow on the crowded mountainous island of Honshu, satellite suppliers gravitated to locations around the primary manufacturing plants. From the clustering of Japanese suppliers developed the legendary 'Just-in-time' or kanban system of inventory control (Yates 1983: 172).

To achieve the sort of volume American carmakers commanded, their Japanese counterparts knew that a successful export strategy was a necessity. But the Japanese have never had the same luxury of abundant resources that the US enjoys. Japan carmakers had to develop a viable approach within very well defined constraints. The resulting Japanese structure did not anticipate a changed environment, but rather attempted to make the best use of what was available.

> The need to produce a variety of models in a small domestic market evoked another creative response in process technology: rapid machine setup and mixed assembly and manufacturing. These techniques facilitated production in small lots, which made it easier for managers to reduce inventories, especially when suppliers were nearby and delivered frequently and in small loads. (Cusumano 1985: 377–378).

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The Japanese carmakers were in a conscious competitive struggle to survive. In contrast, the dominant concern in the US was to keep production flowing. This was equally true in Japan but with the added difficulty of facing a severe resource constraint. Production then needed to be geared so that inventories were held to a minimum with capacity utilisation being pushed to a maximum. Table 2 illustrates the high inventory turnover of Nissan and in particular Toyota, relative to that of US manufacturers.

Table 2: Inventory Turnover Comparisons — US and Japanese Car Manufacturers

Period	Nissan	Toyota	GM	Ford	Chrysler
1955-1959	7	11	7	9	9
1960-1964	14	15	7	8	9
1965-1969	14	26	7	7	8
1970-1974	14	23	6	7	6
1975-1979	14	26	8	9	6
1980	17	23	8	7	5
1981	15	21	9	8	6
1982	16	29	9	9	7
1983	19	30	12	11	11

Source: Adapted from Cusumano 1985: 302

Table 3 illustrates how the principles of lean production translated into higher levels of capacity utilisation, particularly in Toyota plants. Locating stamping presses near the assembly plant, keeping inventory low, enabled Japanese manufacturers to more easily conserve needed capital. Short runs and careful use of capital provided them with the sort of flexibility needed to meet ever changing consumer demands. Using all inputs to their fullest extent was the common theme underlying the production decisions of a Toyota or a Nissan. Even employees worked an average of 12 per cent more hours than their counterparts in the US.

Table 3: Carmakers' Capacity Utilisation (%)

Period	US	Nissan	Toyota
1970	96	89	103
1975	81	82	101
1979	83	93	102
1980	67	97	114
1981	63	94	109
1982	60	82	104
1983	75	85	100

Source: Adapted from Cusumano 1985: 302

Other things being equal, this drive by the Japanese to squeeze more out of their available resources should have left them with an increasingly efficient scale of operation but one which was becoming progressively less resilient. Unlike General Motors, the Japanese could not afford the luxury of providing for flexibility by in effect idling resources, whether by creating comfortable buffer stocks of

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inventory or building up excess productive capacity. All available resources had necessarily to be used directly for manufacturing operations.

Since the Japanese were cognisant of these limitations, an alternative source of flexibility had to be found. Though protected to a significant degree from foreign imports, the presence of eleven domestic producers insured a need for competitive flexibility. The attempted solution was two-fold. The first strategy aimed at reducing the need for flexibility by lowering possible sources of market uncertainty. In the fifties and sixties, when the Japanese car companies were at the height of their vulnerability, a rapidly expanding domestic market papered over their potential economic difficulties with a flood of cash. Firms did not need the sort of flexibility that becomes exigent under a shrinking market regime. In the years between 1955–1970 when exports made up less than 20 per cent of all Japanese car production (3.1 per cent in 1955, 20.5 per cent in 1970), the domestic market grew at an average rate of 31 per cent (Cusumano 1985: 392). During these crucial years when car manufacturers experimented with alternative organisational and production strategies, the Japanese had the good fortune to face increasing demand which automatically lowered the cost of any corporate errors.

However, Japanese carmakers developed active alternatives which provided flexibility when needed. They devised a unique method for spreading the costs of adjustment. All constituencies bore some of the pain pro-rated according to their ability to do so. This was distinguishable from the sort of zero sum cost shifting their American counterparts might be more prone to employ. Belt tightening, like bonuses, were not restricted to a particular group of employees. The failure of industrial unions in 1953 and their replacement by tractable company versions insured that workers would be more receptive to an array of management strategies.

Japanese car firms managed by promising less but at the same time asking for more from the appropriate constituencies. By making fewer commitments to their constituents the amount of economic adjustment needed to meet unanticipated contingencies lessened. Using such a strategy would ideally mean the possibility of operating at a lower level of flexibility. Given their limited resources this approach would seem to provide a workable solution.

US car operations early on utilised a heavy degree of vertical integration to provide an assured quantity and quality of parts. But vertical integration costs dearly in terms of the flexibility exchanged for that added degree of certainty, namely additional commitments not only in the form of plant and equipment but labour contracts comparable with those of the main division.[13] While General Motors had the resources and could gain an advantage in retaining 70 per cent of a car's manufacturing costs in house, Toyota took the diametrically opposite course of contracting out 70 per cent of those costs. Not only were the initial commitments fewer, but these highly dependent suppliers were more amenable to bearing the brunt of any adjustment cost. Pyramid like wages descended as one worked one's way down past the major contractors (as low as 75 per cent of the parent firm) and on through the sub and the sub-sub contractors.

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Moving into foreign markets, both the sources of efficiency and flexibility presented by the Japanese differed from the standards previously set by their US counterparts. Being outsiders in a foreign market, the Japanese saw more clearly the need to be attentive to potential car buyers. If they were to build up a distribution system to equal that of the domestic producers, they would have to gain the trust of the marketplace. Though price was the point of attack, quality would build and maintain sales volume. Being resource poor, the Japanese were more apt to view constituent relations, especially mutual trust, as their principle source of flexibility. Not straightened by material limitations, the Americans considered flexibility to be a by-product of capital abundance. For example, while Detroit's past history of success allowed it to use inventory as a source of flexibility, a buffer against varying demand, the Japanese used it as a source of pressure to promote innovation and efficiency:

> Lowering inventory levels makes the sources of production problems apparent, be they long set-up times, erratic performance, poor equipment, or just plain sloppy work. Problem visibility is increased and the consequences of failure become more severe. As inventory levels are lower, workers and managers face intensified pressure to work more closely as a team and to solve the problems that impede more efficient flows. Thus inventory levels actually control the level of stress on performance applied to the work force (Abernathy and Clark 1982: 62).

Despite their rising dominance in the import market, it was primarily events in the Middle East that presented Japan with the opportunity to become a major player in the US. One could hardly say that the Japanese expected or planned for such a change. When the oil shock hit in 1973, they were far from able to meet the sudden shift in market demand. To stress a point, the Japanese strategy in dealing with efficiency/flexibility conflicts was not self-evidently a superior program. The Japanese happened to have the right product at the right time, as they were already making small cars for the home market.

The pitfalls that a shift in public perception held for Detroit can best be understood by recalling Alfred Sloan's approach to the car market. To gain the economic certainty needed to produce large numbers of cars, first time buyers were initially attracted to cheaper models. As they matured and their incomes grew, these buyers would trade up to more expensive and thus more profitable models. Buyers of GM cars could continue to buy bigger and supposedly better GM cars. This was a lifetime arrangement. By pricing themselves out of the entry rung, Detroit surrendered a whole generation of car buyers to the Japanese or some other comparable country's import. All of which means, that as that current generation aged, they did not automatically turn their sights upward toward Buicks or Mercuries. This was the real threat posed to US carmakers: the removal of that certainty which enabled them to ignore questions of flexibility. Figure 1 illustrates the resulting loss of share of the US car market, particularly for GM, and the growth in Toyota's share of the US:

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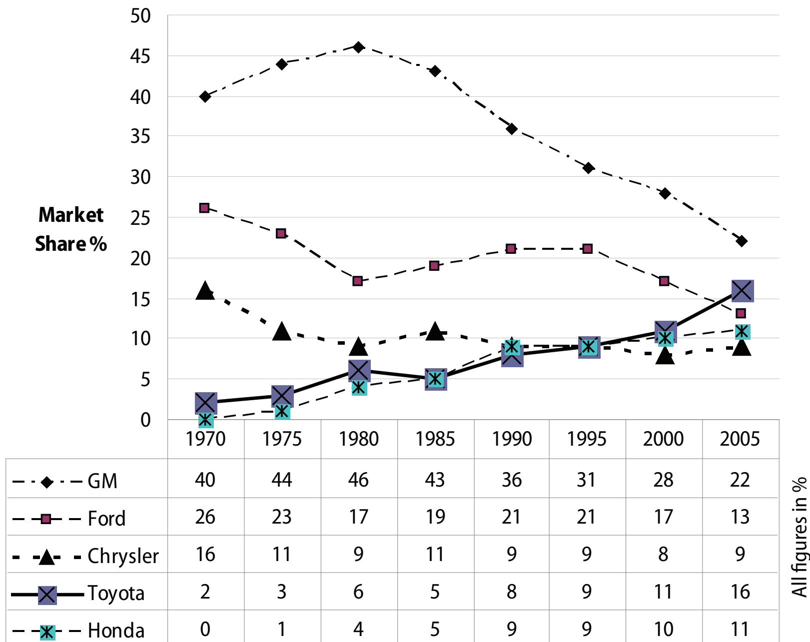
Figure 1: Changing Shares of the US Car Market, US 'Big Three' and Two Japanese Manufacturers, 1970–2005



	1970	1975	1980	1985	1990	1995	2000	2005
GM	40	44	46	43	36	31	28	22
Ford	26	23	17	19	21	21	17	13
Chrysler	16	11	9	11	9	9	8	9
Toyota	2	3	6	5	8	9	11	16
Honda	0	1	4	5	9	9	10	11

Source: Train and Winston 2007: 1471.

The Japanese, by contrast with US carmakers, quickly recognised the need to build larger, more up-scale models if they were to retain those buyers they first attracted in the mid-seventies. The initial response to the Honda Acura line was impressive; it had sales of 109,000 in 1987; and was voted number one in customer satisfaction that same year (*Business Week* March 7, 1988: 57). Other Japanese car makers like Toyota quickly had their own success with luxury models like the Lexus. As the Japanese in turn were pressed on the lower end by the South Koreans, any failure to make that necessary up-scale adjustment would endanger Japan's continuing success.

This analysis suggests that firms take a large gamble by becoming too closely aligned with a specific economic environment. Toyota did not discover a unique or final solution to the market problems faced by carmakers. Through necessity it had developed a system that fortunately happened to operate well under a changed economic climate, even though Toyota had not anticipated this climate. As we shall see, neither the Toyota system nor the firm would perform flawlessly, once the economic climate changed again. So it is important to understand how Toyota's success was dependent on a certain set of circumstances in order to understand the sort of dangers that Toyota would in turn face.

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6. Mixed Performance: Recognising Opportunities in the Absence of Omniscience

> Ancient and rooted prejudices do often pass into principles; and those propositions which once obtain the force and credit of a principle, are not only themselves, but likewise whatever is deductible from them, thought privileged from all examination (Bishop Berkeley quoted in Kline 1980: 160).

Like Americans, Japanese carmakers conducted their own search for certainty. By operating in a predictable environment, the difficulties encountered in achieving the demands of efficiency and flexibility lessen, receding to a problem of secondary importance. For the dominant firm, even the need for superior market foresight fades.

Starting with a clean slate after the devastation of World War II, Japanese carmakers had no prior pattern of success to neglect in favour of a new one, nor existing capital equipment to replace. In seeking an opening into the US market, they faced an environment created in part by domestic carmakers and meant to be congenial to those firms' own needs. The Japanese sought to adapt to these limitations. Still, like their American counterparts, they depended on being able to shift any demands for increased flexibility and/or efficiency onto their constituencies. But where Detroit used their dominant position to terrorise key groups, the Japanese saw co-opting as a more productive route. Suppliers were assured contracts and a core group of workers were guaranteed their jobs for as long as they performed up to agreed upon standards. Potential US franchise dealers were to be cultivated rather than force fed cars. The Japanese as supplicants initially had no other viable alternative in order to build the necessary nationwide network.

Because of a captive home market, the Japanese had the time to develop a coordinated organisational structure much as US carmakers had been able to construct prior to World War II. Also following US patterns, the dominant carmaker, Toyota, had the luxury of being slow moving and conservative, while its less well endowed competitors were forced to take greater risks. In a sense, their overall approach to efficiency and flexibility was comparable to that of Detroit carmakers, no matter how dissimilar their product. Both relied on establishing certainty in their respective environments. But their differing historical perspectives, geographical imperatives, and resource disparities ensured that the paths they took in search of stability would diverge.

The Japanese were headed for moderate success prior to the widely unanticipated shift in the prevailing economic environment. At the time it was unclear that they were, or are, any more flexible in their approach than US carmakers. They have continually perfected that approach, but it essentially remains unchanged over these last thirty years. As they have now been pressured to extend further and further to the limits of their capabilities, they can no more escape efficiency/flexibility conflicts than Detroit did in the seventies. The key to future success depends on their ability of avoiding the inevitable trap of becoming captives to their past success:

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> The specific practices and policies through which [Japanese] principles have been implemented assume social, economic, and technological stability. The future, however, may well be much less stable in these respects than the past has been (Abernathy and Clark 1982: 72).

Not all Japanese competitors have proved to be sufficiently dextrous, with only Toyota and Honda remaining both independent and strongly viable after the turmoil of the post-bubble economy. No firm is invulnerable to the sort of major global depression which first became a rising tide in 2008. Plummeting car sales across the board will affect all competitors. Still, these two Japanese firms have at least initially avoided the dire predicament of being placed on a life support system.

However, even Toyota, undoubtedly the outstanding success in the car industry for the last three decades, fell into a syndrome that was unfortunately reminiscent of GM's blunders. As General Motors learned decades before, overwhelming success carries with it the seeds of its own destruction. The resurgent Korean challengers, and a revived VW, now played the same role that Toyota had previously performed relatively to the smug, but vulnerable, US carmakers. Thus Toyota's first loss since 1950 of ¥437 billion (financial year 2008–2009) reflected far more than the broad slump in demand traceable to the world wide recession. Toyota, buoyed by uninterrupted success, allowed the firm's quality levels to slip — a critical error since the firm had built its reputation on reliability rather than building exciting or attractive cars. Now it operated as though other companies were not nipping at its heels. The recent world wide economic downturn that first struck in 2008 hit the demand for new cars hard, underlining the overcapacity created in more optimistic years. Imitating past history, the now dominant Toyota would find itself ill prepared for this shift in economic environment. Like General Motors it would find itself a victim of turning out too many unappealing models while letting quality standards relax:

> The latest in a series of recalls that has now hit almost 8 million Toyota cars worldwide was again due to an accelerator problem and covered eight separate models and dates ranging back to February 2005 (*The Age* 31 January 2010: 55).

Toyota's current chief, Akio Toyoda, grandson of the firm's founder, raised the alarm in October 2009, warning that the firm might already be locked into a downward spiral. He expressed grief at a fatal crash resulting in the first large-scale recall, uttered regrets over the closure of the company's California plant, and stated that lack of preparedness for the financial crisis had left the company 'grasping for salvation' (Tabuchi and Maynard 2009). Mr Toyoda's statement that 'the firm could be locked in a spiral of decline' attracted wide comment (see for example, *The Economist*, 15 December 2009). This recognition at least differentiates Toyota from GM some thirty years earlier, when a previously invulnerable GM had been firmly entrenched in the spirit of self denial.

The conclusion is that no firm is immune from the lethal dangers attached to overwhelming success. General Motors' current dismay and Toyota's current

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danger is more the rule than the exception. The issue then is maintaining sufficient flexibility to weather these moments when they are inevitably sprung.

7. Conclusion. No Way Out: The Consequences of Being Too Big to Fail

> There are many experts who think that the whole restructuring strategy is misbegotten. These experts think that costs are not the real problem. The real problem is the product. The cars are not good enough. The management is insular. The reputation is fatally damaged. But if you are in the restructuring business, you can't let these stray thoughts get in the way of your restructuring. … Restructuring is like what dieting is for many of us: You think about it every day. You believe it's about to work. Nothing really changes (Brooks 2009).

Twenty years ago the 'Big Three' and certainly GM were on a dead end track. Although at that time a radical refocusing of what they did and how they did it looked difficult to accomplish, speeding toward a self-created breakdown was not inevitable. Instead, given the temporary government structured haven provided by the Reagan Administration, US companies replicated their most serious mistakes. Once again, they put all their eggs in one efficiency basket by going for short term success and heavily discounting the possibility of unanticipated changes in their operating environment. Their virtual magic pudding was a portfolio of minivans, light trucks and sports utility vehicles (the infamous SUVs). Apparently operating on the assumption of unlimited growth in this market, they disregarded the threat of Japanese competition, letting the good times roll. They assumed that people would continue happily to buy vehicles like the GM Hummer, transport for people who already have too many cars. GM continued to build unwanted cars and unload them through massive discounts and zero financing enticements. The growing vulnerability was there for all to see. Detroit's refusal to plan for unanticipated contingencies left these firms unable to cope with the severe market shocks that eventually occurred.

The company proceeded on the assumption that the existing conducive environment would simply extend indefinitely. GM had ignored the need to spread its risk by developing a viable portfolio of strong models appealing to a variety of market sectors. This strategy had previously allowed GM to gain its ascendancy in the twenties and thirties under Alfred P. Sloan when Henry Ford stuck to his belief that he knew what the American car buyer needed. Sloan's approach, perfected in the post war period, had enabled General Motors to push its domestic market share to 50 per cent in the fifties and sixties.

Unfortunately, although firms grow large for a number of reasons, two defensive rationales arise that allow them to minimise the basic need for flexibility. Very large firms can survive a series of poor management decisions that would destroy an ordinary organisation. Second, political life support is more likely to be available to those firms deemed 'too big to fail'. Such firms are likely to create too much economic disruption should they be allowed to enter their natural

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abode of bankruptcy. Firms falling into this category are likely to have much greater lobbying power than an ordinary, run of the mill firm.

That leaves the current Obama administration in an unenviable set of circumstances. The problem with a firm like General Motors is fundamental rather than a much simpler difficulty involving a temporary cash flow impasse. Ultimately the only solution may be to ease the corporation into liquidation, or a much smaller incarnation, while minimising the related costs to key constituencies like suppliers and the wide range of employees potentially affected. But failure of GM would create something equivalent to a black hole in the car market, pulling down with it many of the linked suppliers and indirectly also threatening the remaining car companies who used a number of these same suppliers. The recent bailout plan which leaves the US government as majority shareholder is an attempt to allow a phased and controlled downsizing in a shrinking and ever more concentrated global market. Both sides are eager to end the 'Government Motors' regime and eliminate the 61 per cent holding by US and Canadian taxpayers. This will not be simple given that the days when the US market would annually ring up 16–17 million sales are now a distant memory. Whether or not the hoped for turnaround eventually can validate the US action remains an unsettled question.

For the government to continue bearing the risk of maintaining its operation indefinitely has no happy precedent. The experience of Britain trying to provide a life raft for an indigenous car industry set on its own destruction was not a happy one. The assumption that the harsh adjustments doled out by the marketplace need to be mollified in certain cases continues to be contentious. Impeding firms from obtaining desirable economies of scale seems foolish where acceptable levels of competition exist. Certainly the rent seeking motivations of firms that find themselves in such difficulties can only muddle the policy implications.

General Motors depended on continued strong demand for cars and trucks, much in the same way that the US mortgage market could stay afloat only in an environment of rising house prices. The firm had lost any viable ability to respond to unanticipated market shocks. As a result, the collapse of GM led not only to substantial losses, but to a virtually bankrupt company. Only deliberate government intervention for political and economic reasons (or rationales) could ensure General Motor's continuing existence, at least for the near term, and yet, as the Reagan years showed, reliance on government bailouts can prevent critically needed radical restructuring. The key to GM's future, like that of any other firm, is whether it can learn from its mistakes. Doing so would be a new departure for the once invulnerable giant, which in the years following the Japanese invasion continually shifted the pieces of its corporate puzzle without fundamentally changing its strategy or beliefs.

Notes

1. Clearly we have a case where the idea of 'not fixing what's not broke' can backfire. General Motors became smug thinking they knew for a certainty what the American public wanted. Certainly a firm with a lock on more

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than fifty per cent of the domestic car market had every reason to pat itself on the back.

2. A working definition of economic flexibility is an ability to respond to unanticipated changes in market environments while minimising the cost of any required adjustment. There are two dimensions to this cost argument, entailing the explicit costs of adjustment and the implicit costs attached to the length of time such an adjustment takes. Together, these two costs compose the full opportunity measure of economic flexibility. It should be clear that these two elements have an inverse relation to one another.
3. Cost structures were not driven down by innovative breakthroughs. A position of dominance in a growing market allowed U.S. carmakers to shift the burden of cost efficiency onto their constituents' shoulders. Later they would turn to those same constituents as a source of flexibility. Captive and outside suppliers provided most of the limited innovations. Dealers, pressured to sell unpopular cars, provided the flexibility that car manufacturers required. Most importantly, US manufacturers started eroding their implicit contract with customers by whittling away at quality in a continued controlled search for increased cost efficiency.

   > The company (Ford), in its drive for greater profit, would take the essential auto structure of the year before and figure out ways to increase the profits by reducing the cost of some of the parts. Not a lot was subtracted. From the outside the car might seem much the same as its forerunner, but Detroit had saved $1 million here and $2 million there by cutting tiny corners (Halberstam 1986: 245).

4. This reflects the bias leaned toward production with assured and large markups:

   > The character of the market at the time was well expressed in *Fortune* in September 1953 ('A New Kind of Car Market'), as follows: 'In the post war sellers market, it (the car industry) has found itself selling more car per car — more accessories, luxuries, improvements and innovations' (Sloan 1964: 439).

5. GM was still reluctant to come to grips with its new environment. Despite facing its biggest crisis since the early days of Billy Durant, GM at times still seemed mired in a fifties' mentality. It became difficult to differentiate the statements of then chairman Roger Smith from his predecessor of some thirty years back, Red Curtice. From a corporation which had just witnessed its share of the US car market drop to a post war low of 36.5 per cent, such statements indicated a lingering obtuseness to a changed economic environment.
6. Dismissing small foreign cars in this way was not solely a reflection of the Detroit mind set. Survey information in the fifties and early sixties confirmed the carmakers' own ingrained prejudices. In a 1957 *Fortune Magazine* poll, some 58 per cent of these car owners were multi-car families. Furthermore, a survey conducted by Nissan in 1963 concluded that the bulk of Datsun buyers were blue-collar workers over forty, conservative and earning between $5,000 and $8,999 per year. Seventy-five per cent of these buyers had at least one other car. (Rae 1980: 36, 71) It would be reasonable to conclude that the

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selling point for these cars was price. Naturally enough that translated into lower profit margins. Neither US manufacturers nor their dealers expressed much interest in this market segment. They were doing quite well selling the cars they had always sold.

7. Of course, the success they discovered in the seventies and built upon thereafter did not make the Japanese carmakers forever exempt from the same problems that befuddled General Motors.
8. This incorporates something of the political flavour of balancing the demands of diverse constituents in order to remain in office.

   > Business is not a population of unitary entities, 'firms in the private sector. On the contrary, it is a number of small societies comprising many people with different interests, opportunities, motivations, and group interests (Schelling 1984: 29).
9. Williamson (1985) points out that investing in specific assets requires an appropriate institutional structure to retain a sufficient degree of flexibility. Basically, fixed commitments cannot be transformed without accruing associated costs. This attaches a positive cost to any required adjustment.
10. Detroit regularly ignored the effect that incentives had on key constituencies. The single focus seemed to be limited to achieving cost efficiencies through economies of scale. Volume became the carmakers' leading, and at times only, business principle:

    > In the noisy, steamy workplaces shoddy workmanship was not only ignored, it was subtly encouraged by management exhortations to produce more at all costs. The problem was exacerbated by the performance of outside vendors, more than 5000 private contractors who build everything from ashtrays to tires for the auto industry. They were often guilty of atrocious workmanship, in some cases encouraged by the stingy price-bargaining of the auto companies which left them no margin for upgrading quality (Yates 1983: 241).
11. Since Henry Ford, car manufacturers have used tied dealers as a safety valve allowing adjustment costs to be shifted toward dealers who had little option but to accept these constraints as part of doing business:

    > A lot of this stuff is hokey ... But do I play? Sure I do, because like the zone guy says, it's franchise insurance. If I buy a few hundred extra cars that are slow sellers this month, I am more likely to get extra consideration when I try to order more of a really hot item next month. This is a tough business and anybody who thinks a dealer and manufacturer are working together is crazy (Yates 1983: 225).
12. It is doubtful that an entirely indigenous Japanese car industry would have existed without direct post war government protection designed to foster this manufacturing sector. (American and European producers were far more productive in the fifties.) Such a policy met with favour since it also maintained scarce foreign reserves while providing a vital outlet for a reviving steel industry (as did state encouraged ship building):

    > During the post war occupation (1945–1952), American vehicles again filled the Japanese market due to the low level of domestic production

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and the suspension of prewar restrictions on imports. Since sales of foreign vehicles drained Japan's small reserves of foreign currency, the Ministry of International Trade and Industry (MITI) restricted foreign exchange allocations and imposed a value-added tax of 40 per cent on imported automobiles, reducing the level of imports from 44.6 per cent in 1951, to 23.1 per cent in 1954 and 8.9 per cent in 1955. Imports continued to decline throughout the decade, reaching 1 per cent of new vehicle sales in 1960 and remained at that level for more than twenty years (Cusumano 1985: 7).

13. Grossman and Hart (1986) discuss vertical integration from an interesting and related property rights standpoint.

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