The Experience Curve-Reviewed

V. Price Stability

Whenever real (deflated) prices fail to parallel real (deflated) cost trends, then market shares will shift. When market share shifts, then relative costs of competitors will shift also. The market leader with the largest share will lose share eventually if prices do not go down as fast as his costs.

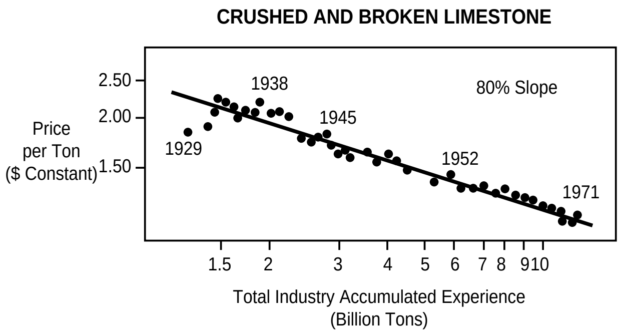
When prices decline faster than the leader's costs on trend, then there is always some competitor who is growing faster than the industry average. That competitor's margin will usually stay constant while all other competitors' margins shrink.

Price and market share are stable only when prices are declining in parallel to costs and prices are low enough to prevent gain in share by high cost competitors.

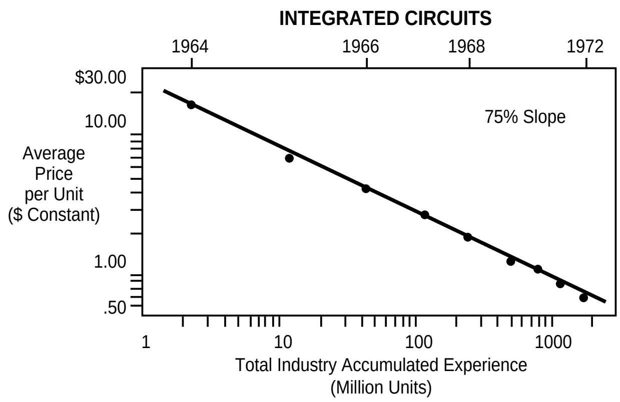
Costs characteristically decline 20 to 30 percent in real terms each time accumulated experience doubles. This means that when inflation is factored out costs should always decline. The decline is fast if growth is fast and slow if growth is slow.

It is obvious that prices must approximately parallel costs over time. Otherwise margins would constantly widen on trend, or conversely, they would continually narrow and then become negative. But costs net of inflation do continually decline as a function of experience. This experience curve effect can be observed in all manner of products and services.

Two characteristic patterns can be observed in almost all kinds of prices. In one, the prices parallel costs after removing inflation. Examples are crushed rock and integrated circuits.

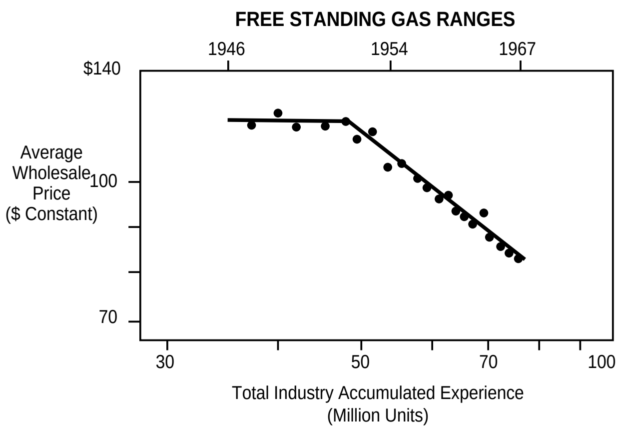


Source: U. S. Bureau of Mines



Source: Published Data of Electronics Industry Association

In the other pattern, prices remain nearly constant, declining very slowly. Then at some point in time, prices begin to decline much more sharply than in the previous pattern. Examples are gas ranges and polyvinylchloride.



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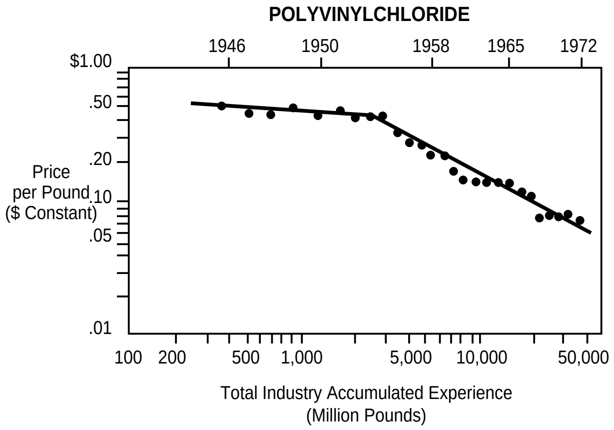
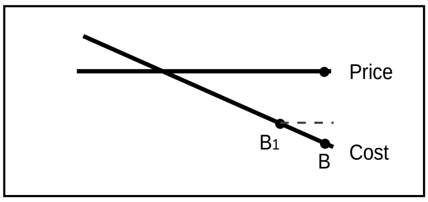


Characteristically, the price during the initial flat portion of the curve is a constant price in the "then current" value. But if inflation is removed, the real price declines slowly in "constant" money value.

A constant price is a strategic target. The increasing margin of the leader is an attractive inducement to enter and to grow even faster. Yet any reduction in share of the leader also reduces his rate of accumulation of experience and slows his rate of cost reduction.

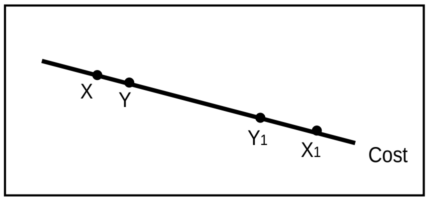


Total Industry Accumulated Experience

B1 : loses share
B : holds share

The new entry starts at high costs but reduces those costs rapidly because of the faster rate of growth.

Competitors are racing each other down the cost curve by accumulating experience. If X grows enough faster than Y, the relative costs can be reversed.



Total Experience for Each Competitor

The interaction between the competitors produces a continuing shift in their relative margins.

Differences in growth rate determine the potential rate of shift in margin between two competitors. For practical purposes there can only be one price or "price equivalent" at equilibrium between vendors of equivalent products. If any competitor is willing to sell at a lower price, he will tend to gain share and grow faster and thereafter improve his relative margin unless all others match the price change.

Prices are stable only when three conditions are met:

- The growth rate for all competitors is approximately the same.
- Prices are paralleling costs.
- Prices of all competitors are roughly equal for equal value.

A change in price will not change price stability except temporarily unless it changes relative growth rate of competitors. Temporary price changes matched by competitors have essentially no effect on relative cost or on stability.

However, a price change that affects competitors' relative growth rate will affect price stability eventually. Paradoxically, long term effects tend to be the reverse of short term effects. An increase in price tends to encourage growth in capacity as well as affect financial resources. Rarely will all competitors be affected equally by any price change. If any competitor changes growth rate,

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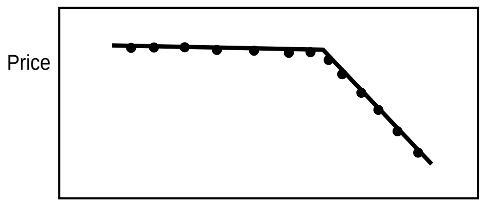
prices will be destabilized if any competitor tries to maintain previous profit margins. The competitor who loses share will eventually have to charge relatively more and vice versa.

Characteristically in the U.S., a majority of new or fast growing products go through a two phase cycle. The first phase has steady prices or very slowly declining prices in constant dollars. This phase is followed by another phase of a long period of steeply declining prices. Usually only one competitor will be able to preserve profit margins. It is always the fastest growing competitor.

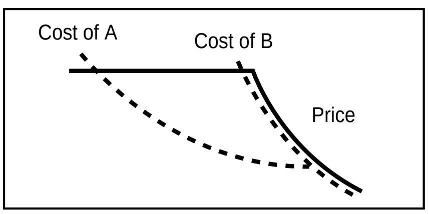
TWO-PHASE PATTERN



Total Accumulated Industry Experience

The break in price is characteristically triggered by some combination of:

- a very successful and aggressive new entry willing and able to maintain a modest profit margin;
- growth of new entries at a rate that eventually preempts all growth from the original leader;
- an economic recession that produces temporary significant overcapacity.

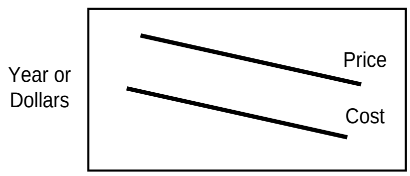


Characteristic pattern if B is allowed an initial price advantage and if B gains market share rapidly while holding constant margin.

The fastest growing competitor has the fastest decrease in costs. As soon as costs are below the current price he has an option. He can maintain constant margins and convert decreasing costs into lower prices. The alternative is to hold prices and let the margin widen. The first option tends to perpetuate the cost decline in addition to perpetuating the high growth rate. The other alternative stabilizes prices but stops shift in cost and market share.

If the fastest growing competitor maintains a constant margin, he can then lower prices faster than anyone else's costs can decline. The strong probability is created that competition with shrinking margins will not invest to maintain margin. Small competitors are often conceded a price differential until they become large and low cost competitors.

By contrast almost all prices in Japan follow a pattern in which prices steadily decline in parallel to costs.



Accumulated Experience

Market share tends to be more stable in Japan than in the U.S. In Japan the efficient producer tends to grow faster than the higher cost competitor. In the U.S. the reverse is often true.

Price stability is determined by the willingness of the leader and low cost competitor to set prices that are low enough to inhibit growth faster than the market by any competitor. Price stability is maintained by the low cost competitor maintaining prices parallel to his costs.Any other policies will destabilize prices and shift market share.

Bruce D. Henderson