

Key Thoughtz:

- AMLCD producers are making smaller panels than they expected while planning recent fab investments.
- Commodity trends constrain demand for premium products.
- Producers will use any rationale to raise prices this year.
- Brands may find themselves squeezed between aggressive panel producers and resistive retailers this holiday season.

What Will Santa Bring Us?

Conflicting trends for panel producers and consumer brands in 2009

When I look at information provided by TFT-LCD producers in Asia and by government agencies in the United States, I try to see what patterns match and which conflict. One of the key patterns today shows that product demand by US consumers is less critical to panel makers than it was in the past. Demand from Chinese, Indian or Brazilian consumers compensates for slower demand growth in the USA or Europe. On the other hand, data from reliable sources such as DisplaySearch indicates that the average display size is decreasing for the first time in memory. That results from greater demand growth in poorer regions and less demand growth in richer ones. Demand for LCD TV sets is elastic relative to price and offering 24" or 26" panels is one way to increase the number of households able to buy LCD TV sets. In addition, new TFT fabrication plants coming on-line this year can make 26" or 32" displays with nearly the same efficiency as they can make 52" displays. Eighth-generation TFT fabs can produce three times more 32" panels and four times more 26" panels than 52" ones, however. That enables panel makers to meet demand for entry-level TV sets in emerging markets. Consequently, their average panel size is decreasing as emerging markets comprise a greater portion of global demand.

A second pattern became apparent before the present credit crisis: diminishing returns to scale. That is a fancy way to say that more

capacity may allow producers to reduce their cost but force them to reduce price even faster. As the market matures, their average profit margin approaches zero. It is rational for producers to invest in more capacity until they reach that point, so they tend to do so. Public disclosures by LG Display demonstrate this tendency. The chart in figure 1 on page 2 plots the average sales per square meter of display from Q1'02 through Q2'09. It also charts the average cash cost, which is the cost of product reduced by depreciation and amortization charges. Plotted over thirty quarters, exponential curve fits show that the average area price falls 23% a year while the average cash cost falls more slowly at 18% a year. That squeezes the producer's cash profit margin over time: it has declined 12% a year since 2002. At that rate, the trend lines would intersect a few years from now. If they do, that implies that leading panel makers would be unable to sustain their business.

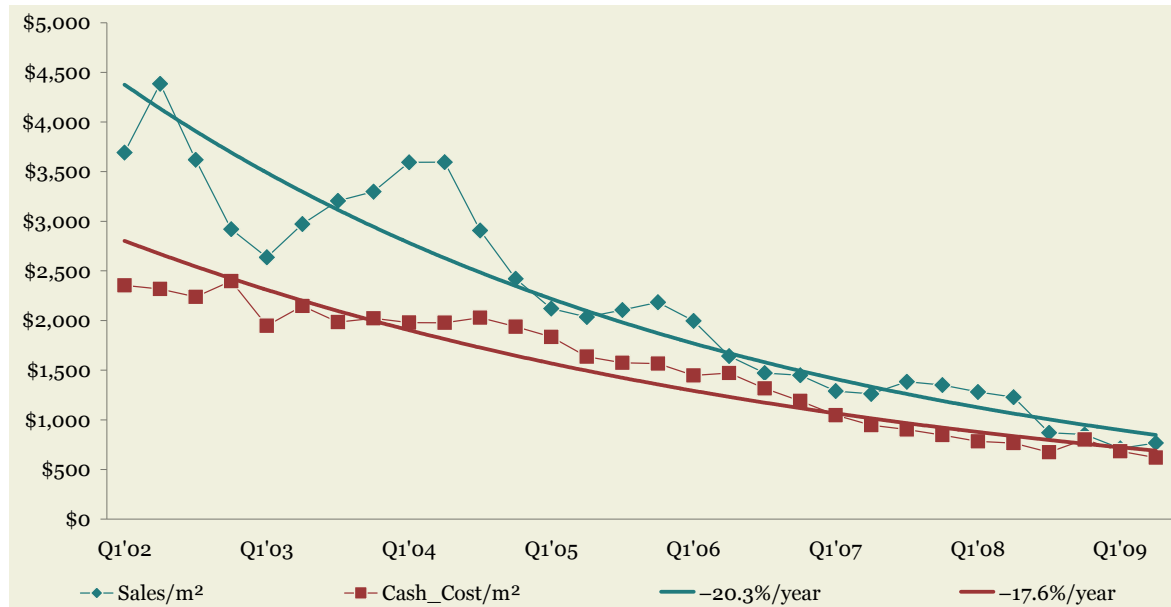
Potential Price Hikes

TFT-LCD producers have strong interests in price hikes, therefore. As shown in the oscillation of the price line on trend in figure 1, it is easier to change price than it is to change cost. As a result, panel producers invest in larger substrate capacity in order to build larger panels that command premium prices. They also create new panel sizes and formats in existing lines in attempts to reduce competitive price pressures. Unfortunately, such attempts may confuse the market and create only temporary advantages. On trend, margins still decline.

Under such conditions, producers will seize any opportunity to use material shortages or other factors as reasons for raising prices. Present conditions are a good example of this tendency. Sudden reductions in TFT capacity utilization in 2H'08 hurt some material suppliers deeply. Even glass suppliers responded by turning some furnaces off, though they remained profitable overall. As TFT-LCD producers bring capacity back on-line, some experience shortages. Others claim shortages. In any case, constraints on production cause buyers to bid panel prices higher as they struggle to keep or sustain

their market shares. Such dynamics led to an average area sales revenue increase of 8% Q/Q for LG Display even though the average price decreased 38% Y/Y in Q2'09. Put another way, square meters of display sold increased 53% Y/Y while the cash operating margin/m² decreased 68% Y/Y in Q2'09.

FIGURE 1: DISPLAY AREA SALES AND CASH COST FOR LG DISPLAY (USD/M²)



Source: author estimates for 2002–2003; LG Display disclosures, 2004–2009

Potential Squeeze

As we look forward to this year’s holiday season, the question arises: How much higher can panel producers raise prices without reducing consumer demand for LCD TV sets?

The good news is that producer interest in higher prices and government interest in greater consumer spending (in China, et alis) may support prices of larger LCD TV sets. Constraints on production, especially by Taiwanese panel makers, and demands for entry-level products in BRIC regions may sustain prices for smaller LCD TV sets through the year. Brands and retailers may use such support to limit discounts on larger sets because there is a natural relationship based on price per square inch. Without doubt, brands and retailers will position LED-backlit TV sets and internet-compatible sets as premium products this holiday season.

The bad news is that consumer spending in rich countries may constrain demand for larger, premium LCD TV sets. As charted in figure 2 on page 3, the cumulative loss of non-government (private) employment in the USA since December 2007 exceeded 6.6 million jobs in June. The official unemployment rate reached 9.5% and the total number of hours worked decreased.

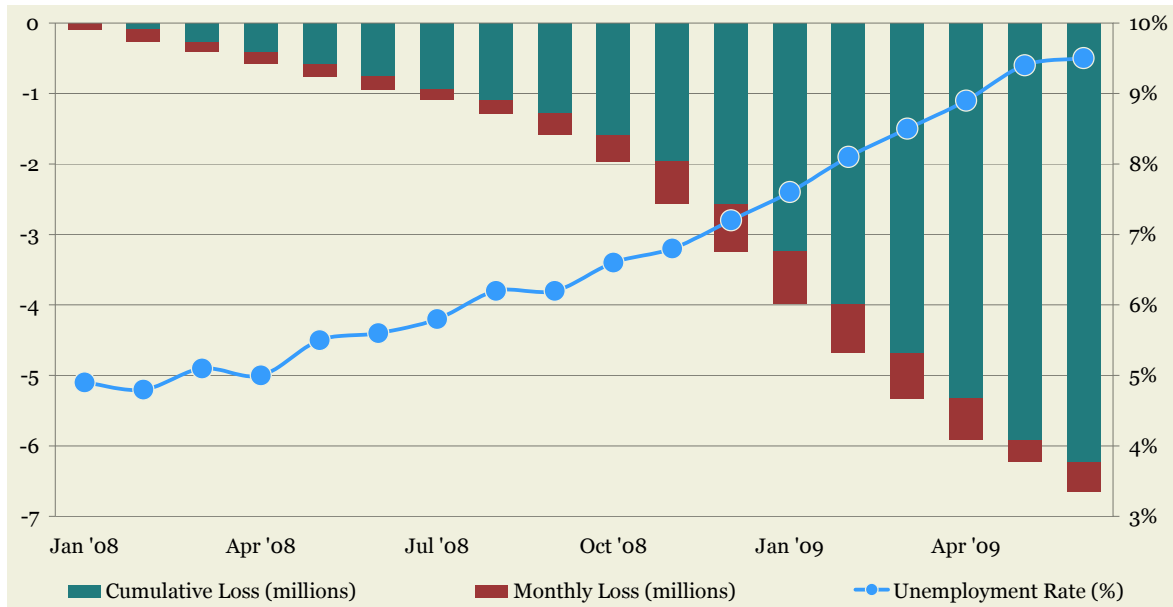
Consumers in the USA are saving more and spending less. For many years, they and consumers in Western Europe were the primary market for larger LCD TV sets. Even if employment rises or housing prices stabilize, they are unlikely to resume spending at levels considered normal before 2008.

The social shift from spend to save can be seen in the change in where people shop. Advance retail numbers for June plotted in figure 3 on page 3, show spending at US electronics stores decreased 9% in the first-half of 2009 compared to 2H'08. The chart plots the increase or decrease each month relative to the prior year. It shows that electronics and appliance stores enjoyed rising receipts Y/Y until August 2008. The cumulative decrease exceeded \$5 billion from December 2007 to June 2009.

Advance figures for sales at warehouse and superstores (NAICS #45291) are not published but final numbers through May

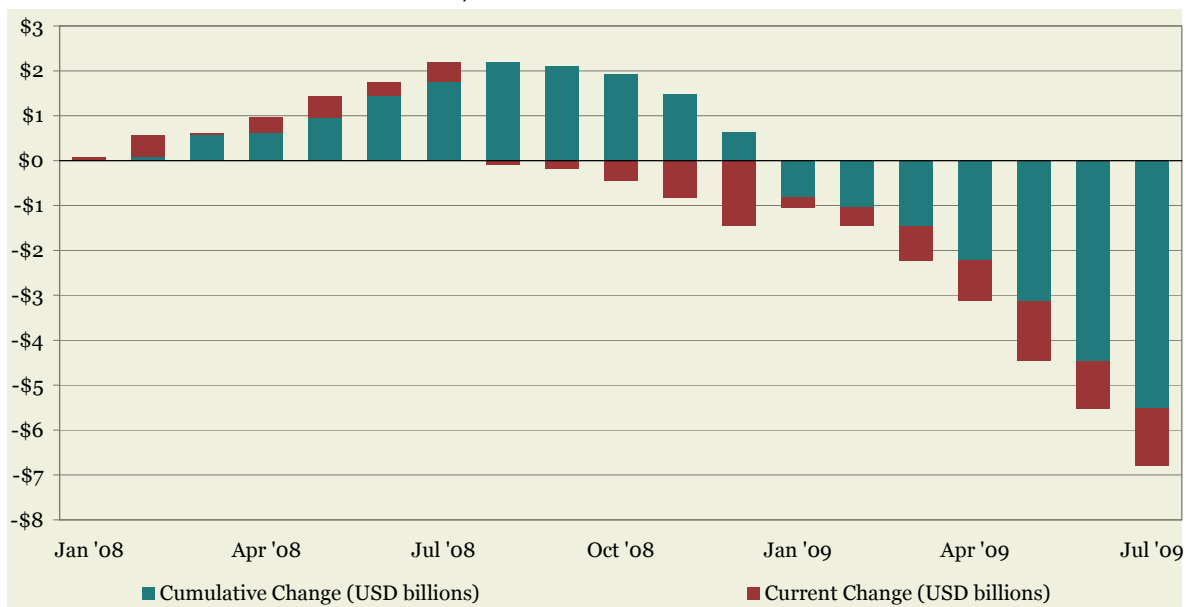
show receipts increased more than 3% above the first five months of 2008. US consumers are spending more at discount stores and less at full-service stores. This suggests that the product mix for LCD TV sets will become more weighted toward the low-price, high-value class. That is the class of products consumers seek at superstores/hypermarkets.

FIGURE 2: CUMULATIVE LOSS IN U.S. PRIVATE EMPLOYMENT SINCE DECEMBER 2007



Source: US Bureau of Labor Statistics

FIGURE 3: CUMULATIVE CHANGE (Y/Y) IN U.S. ELECTRONICS SALES SINCE DECEMBER 2007



Source: US Census Bureau (NAICS #433)

Implications

In summary, panel makers may expect (or even deserve) price support but they may find less demand for larger, premium displays that they expected when they invested in next-gen fabrication capacity. If so, they may allocate more of such capacity to serve entry-level market segments. The number of TV panels would rise because the next-gen glass substrates yield three or four times more sub-40" panels than they yield 52" panels. Rising output would lead to falling prices, unless demand in BRIC regions can rise to the occasion. If this occurs, we may get bargain-basement LCD TV sets this Christmas.

—by David Barnes for BizWitz LLC, a consultancy specializing in electronic display and imaging business decisions throughout the supply chain from raw materials through retail, worldwide

