# *The DRAM Market and the Limited Role of Subject Imports*

Hynix Presentation to ITC
in Inv. 701-TA-431 (Final)

June 24, 2003

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# *Overview of Presentation*

- Comments on the broader forces that drive the DRAM market, including many factors largely ignored by Micron and Infineon.
- Comments on specific pricing dynamics in the U.S. market: the role of global pricing, and how customers choose among suppliers.
- Implications of these market realities for the ITC analysis:
  - current injury
  - causation analysis
  - threat of injury

# *Key themes*

***Context is critical.*** The role of Hynix can only be understood in the context of the business cycle, and other DRAM suppliers.

***Changes over time.*** The key issue is how has Hynix's role changed over the period. Others have spent more and gained market share, while Hynix has lost share both globally and in the United States.

- ***Micron is wrong to stress only supply.*** Demand is critical. Demand shocks better explain what was different about pricing in this period.

***The case is about the effect of subject imports.*** The statute focuses on subject imports, not global supply.

***Cannot ignore non-subject imports.*** Non-subject imports dwarf subject imports, and must be considered.

# *The DRAM Market*

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Vice President of World Wide Marketing
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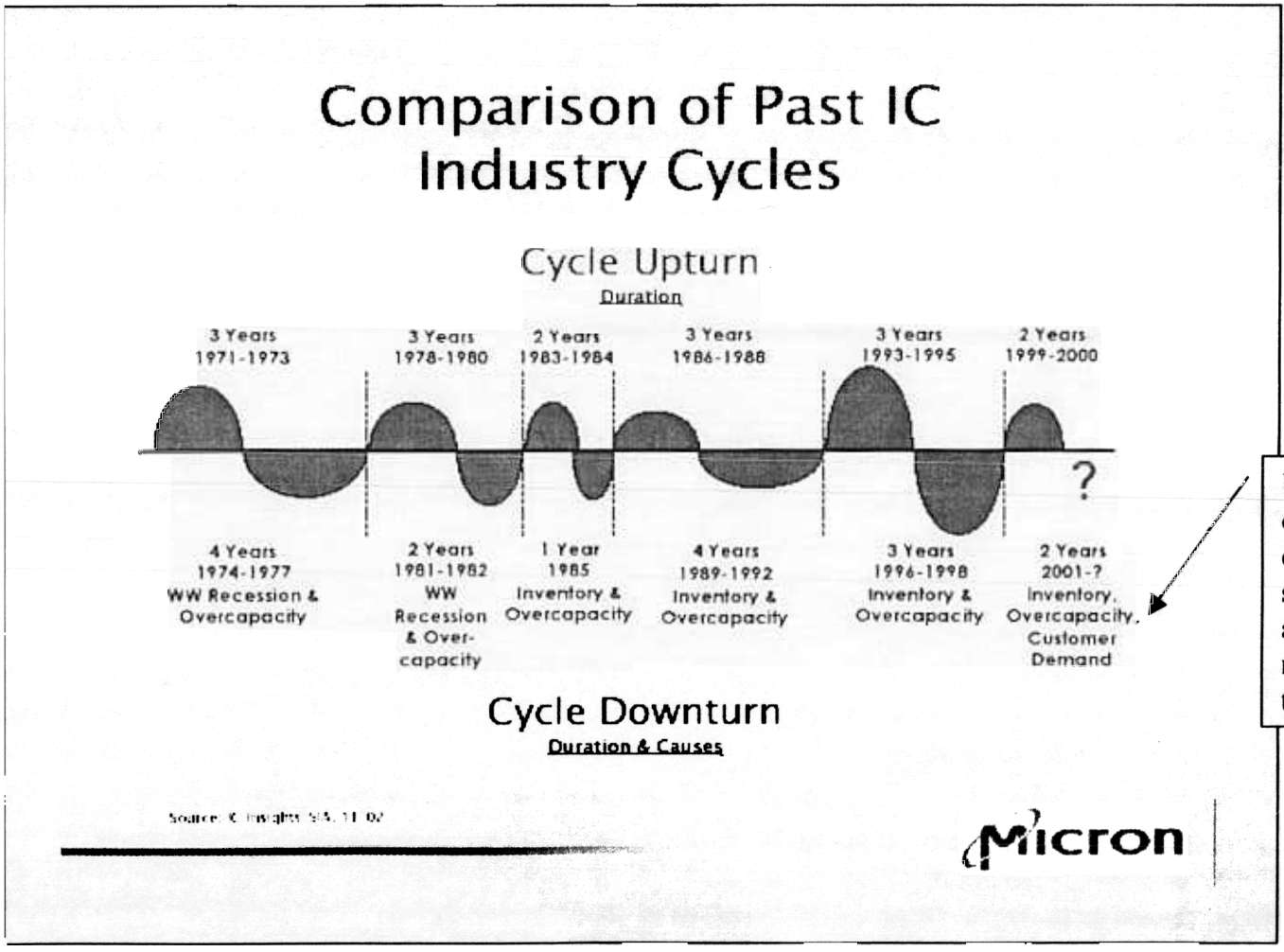
# *DRAM market – key points*

- Boom-bust cycles have always been a feature of the DRAM market, and are quite normal.
- DRAM market is a global market for both suppliers and users.
- Pricing depends on supply-demand balance, and does not depend primarily on supply factors alone.
- DRAMs from various suppliers are interchangeable.

***Everyone in the industry agrees on these basic features***

# *DRAM Market is Cyclical*

# *Everyone recognizes these extreme cycles*




**Unlike previous cycles, customer demand specifically cited as a factor in the most recent trough.**

Source: Micron Comdex Presentation, Nov. 2002, relying on IC Insights analysis.

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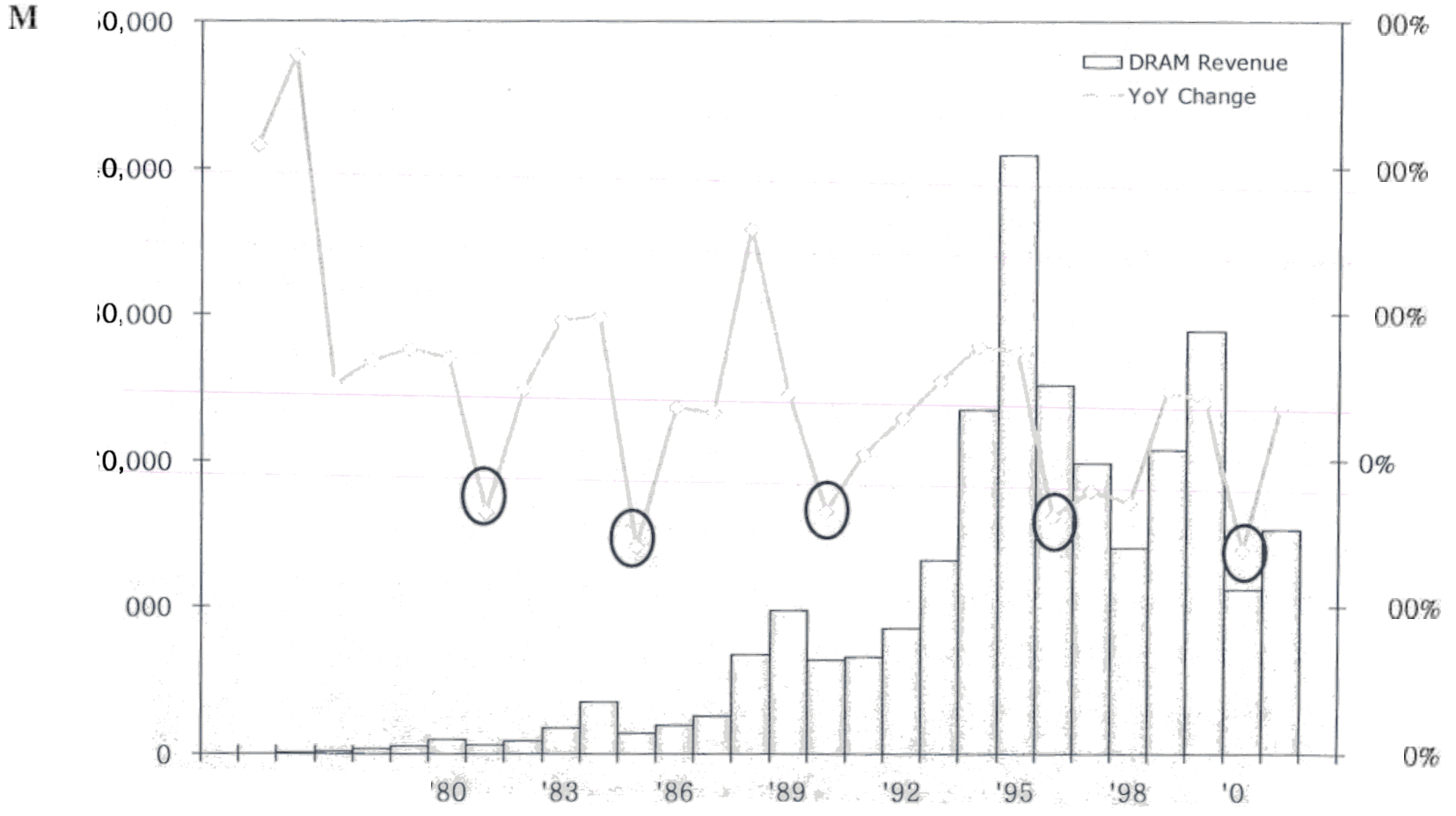
# 2001 was bad but needs to be put in context




Source W TS. Dataquest

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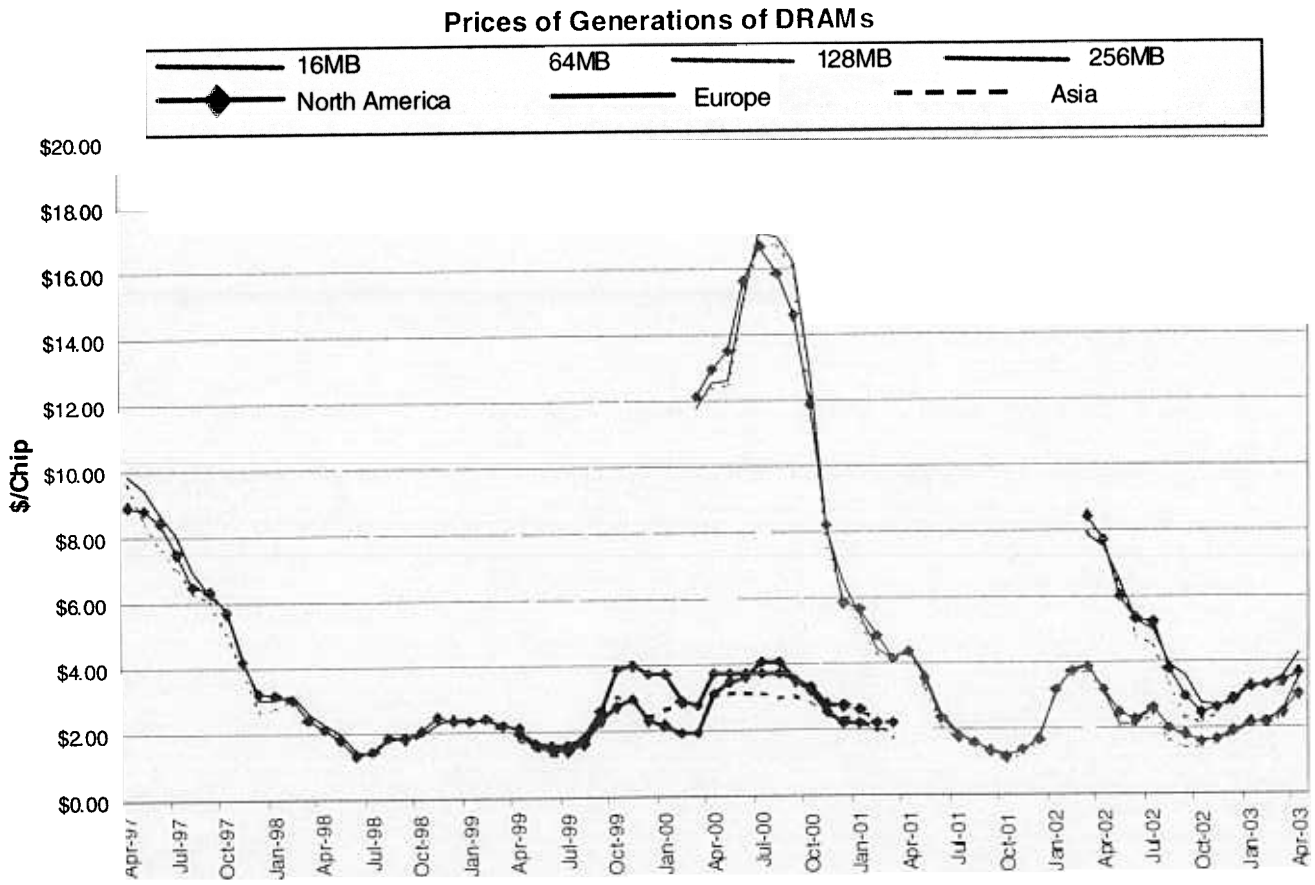
# *DRAM Market is Global*

# *Prices have always been consistent*




Source: ICIS-LOR Spot Prices.

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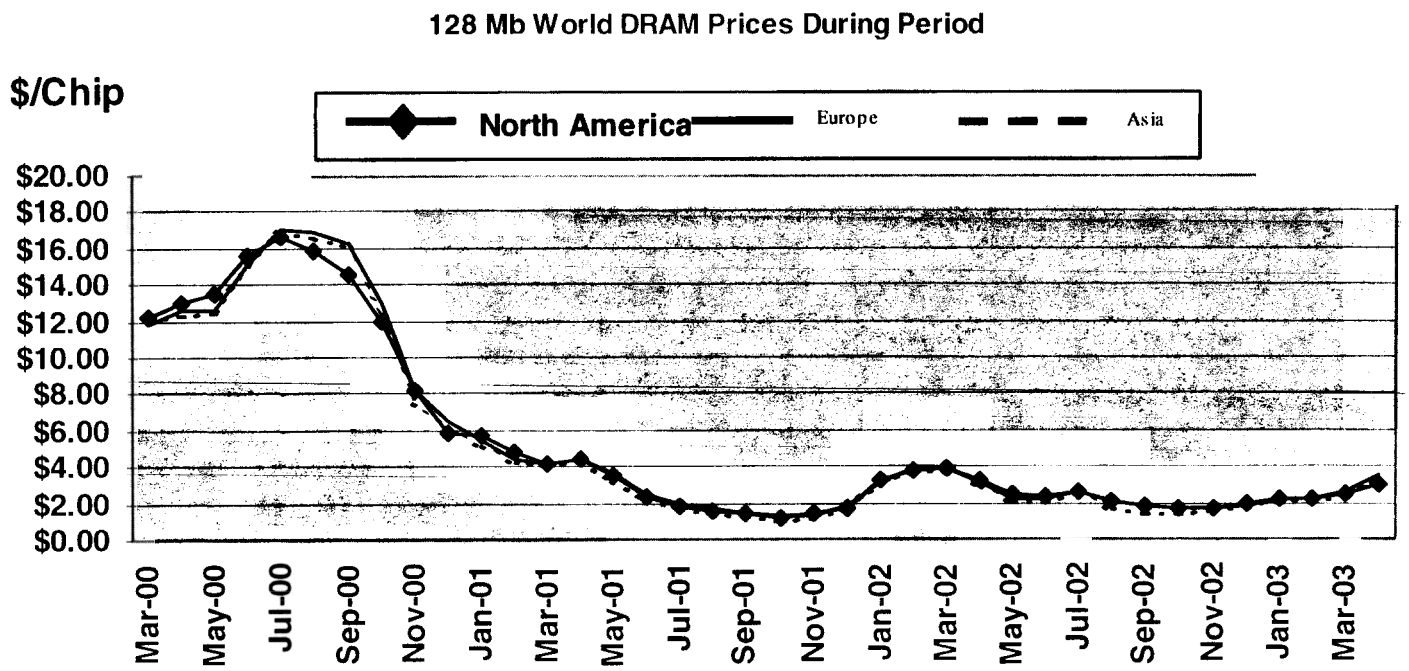
# *Prices are consistent on global basis*




Source: ICIS-LOR 128MB Synch PC133 Spot Prices.

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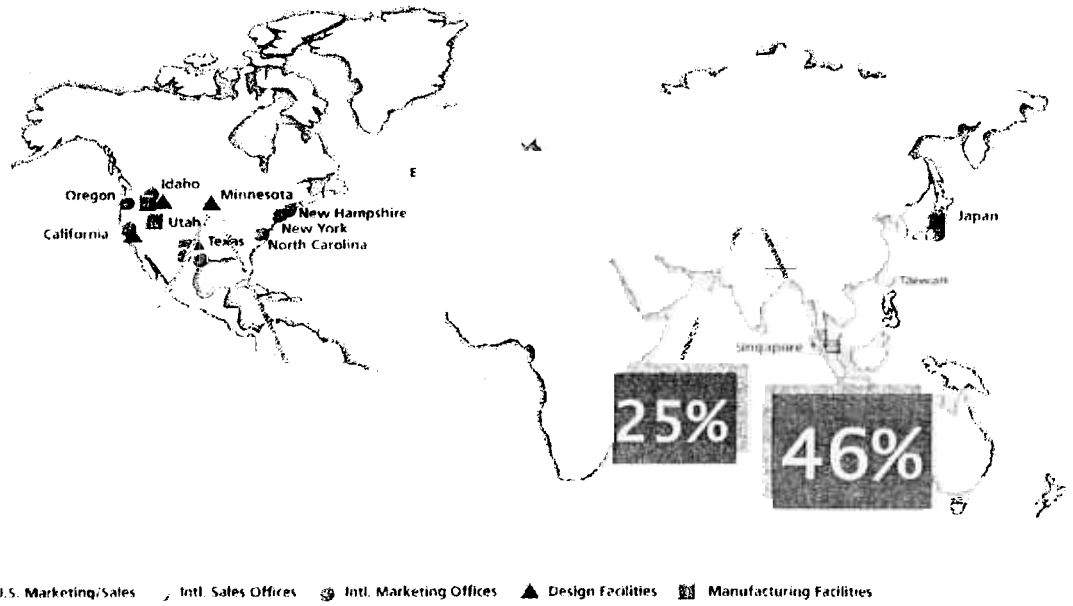
# *Micron has shifted to overseas markets*

## International Customer Base
## 1997 vs. 2002 YTD

1997

2002 YTD




Micron

***Demand*** ***Very Critical Factor***

# *The supply-demand balance matters*

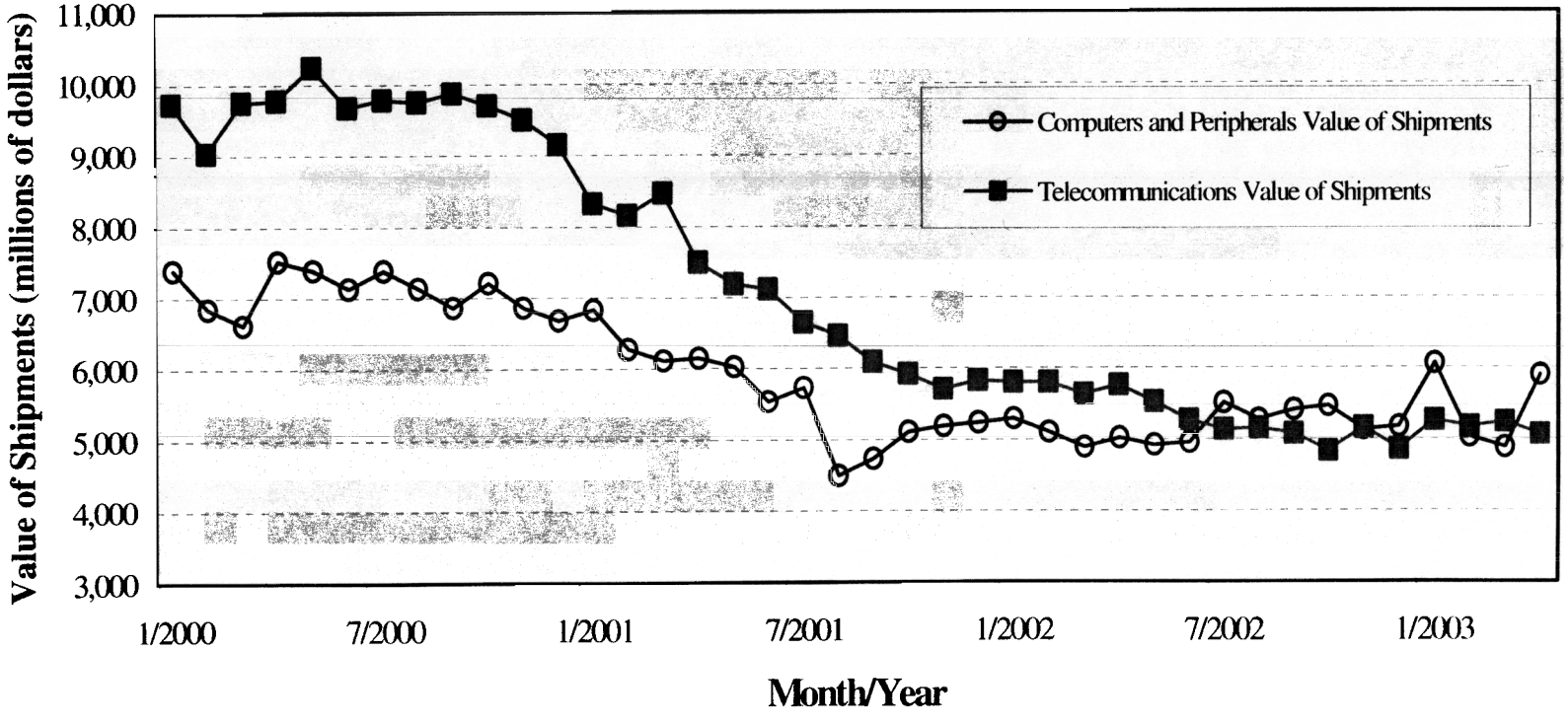
- Micron argues that only supply matters, and that demand does not matter very much.

- This is just not true in the market. Demand matters very much, because supply matters relative to the level of demand.

- Particularly for 2001, must understand the shift in demand to understand the price levels.

# *Derived demand for DRAMs fell sharply*

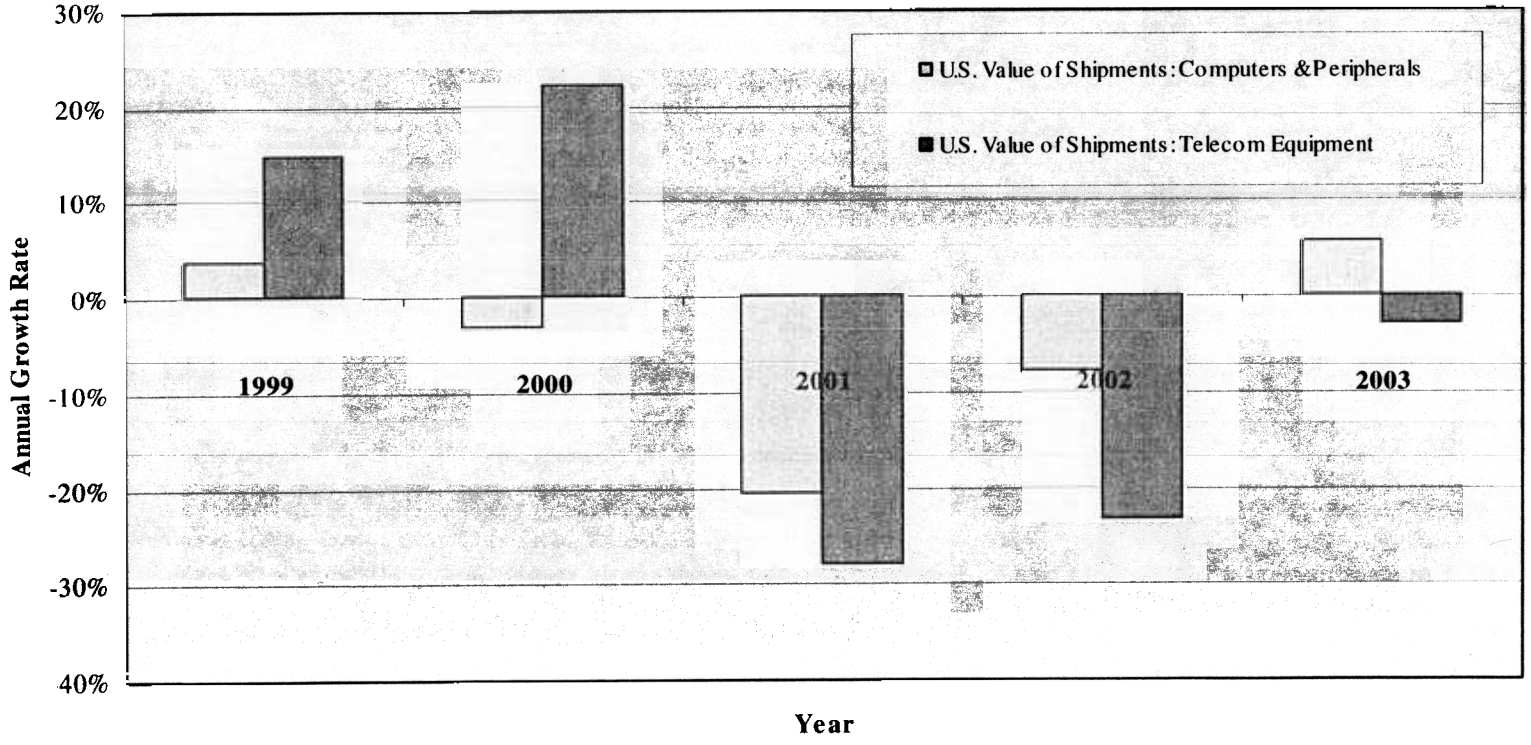
**Derived demand: Computers and peripherals, and telecommunications shipments**




U.S. Census Bureau. Period: January 2000 through April 2003.

# *Growth rate of the derived demand*

**Growth Rate: Computers and peripherals, and telecommunications shipments**




U.S. Census Bureau. Period: January 2000 through April 2003.

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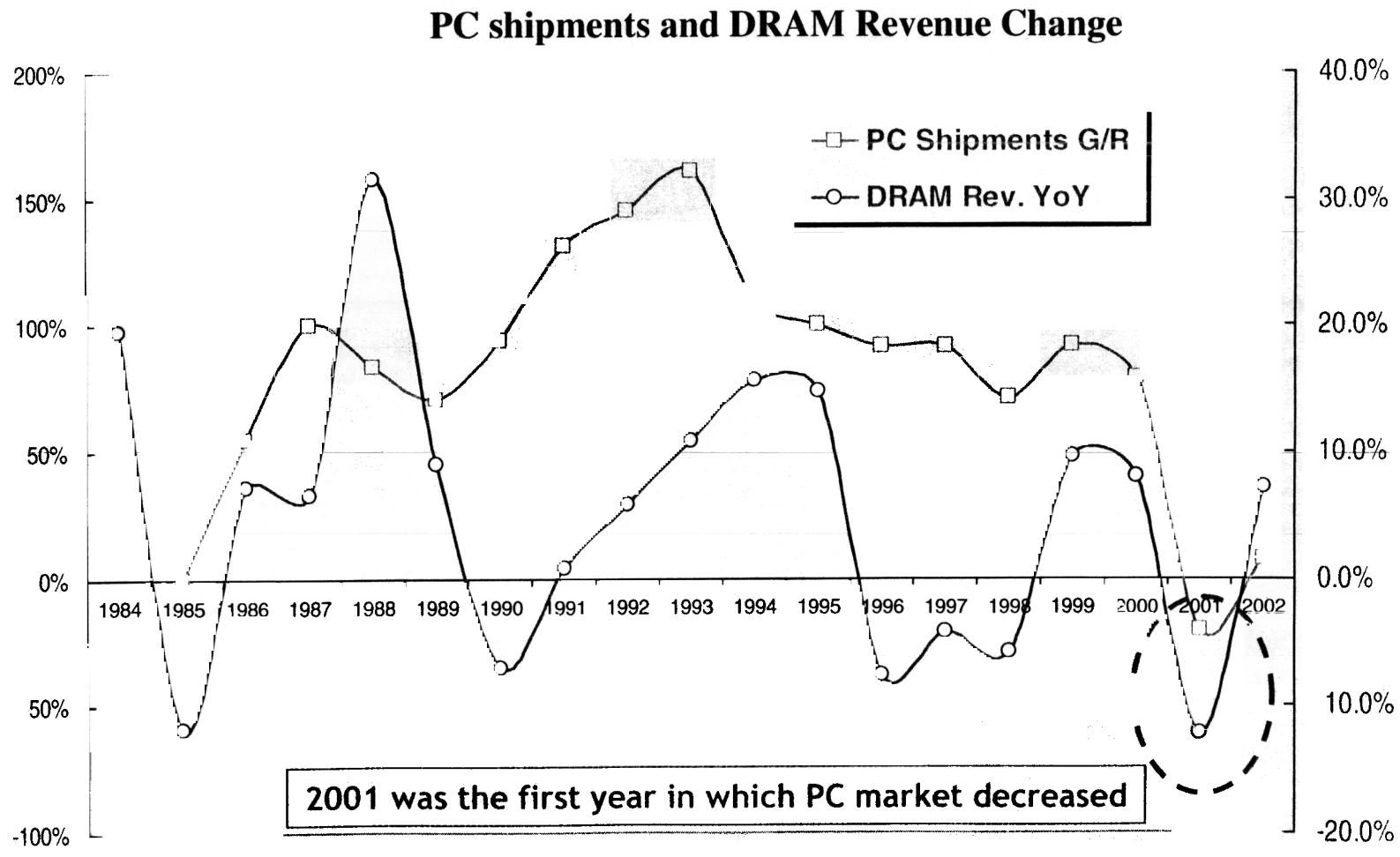
# *PC shipments fell in 2001 for the first time*




*Source*: WSTS/DQ, IDC.

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# *Micron admits that demand matters*

- Micron's brief argues that the DRAM market is supply driven, and downplays the role of demand.
- This defies common sense. And Micron CEO Steve Appleton has acknowledged the role of demand:

"We have had a ***fundamental shift I think in the demand profile***. As you know, it historically ran at 75 percent and whole world is now talking about 50 percent at least in the last year and this year." Micron Conference Call, June 18, 2003.

# *Thus, understanding demand is crucial*

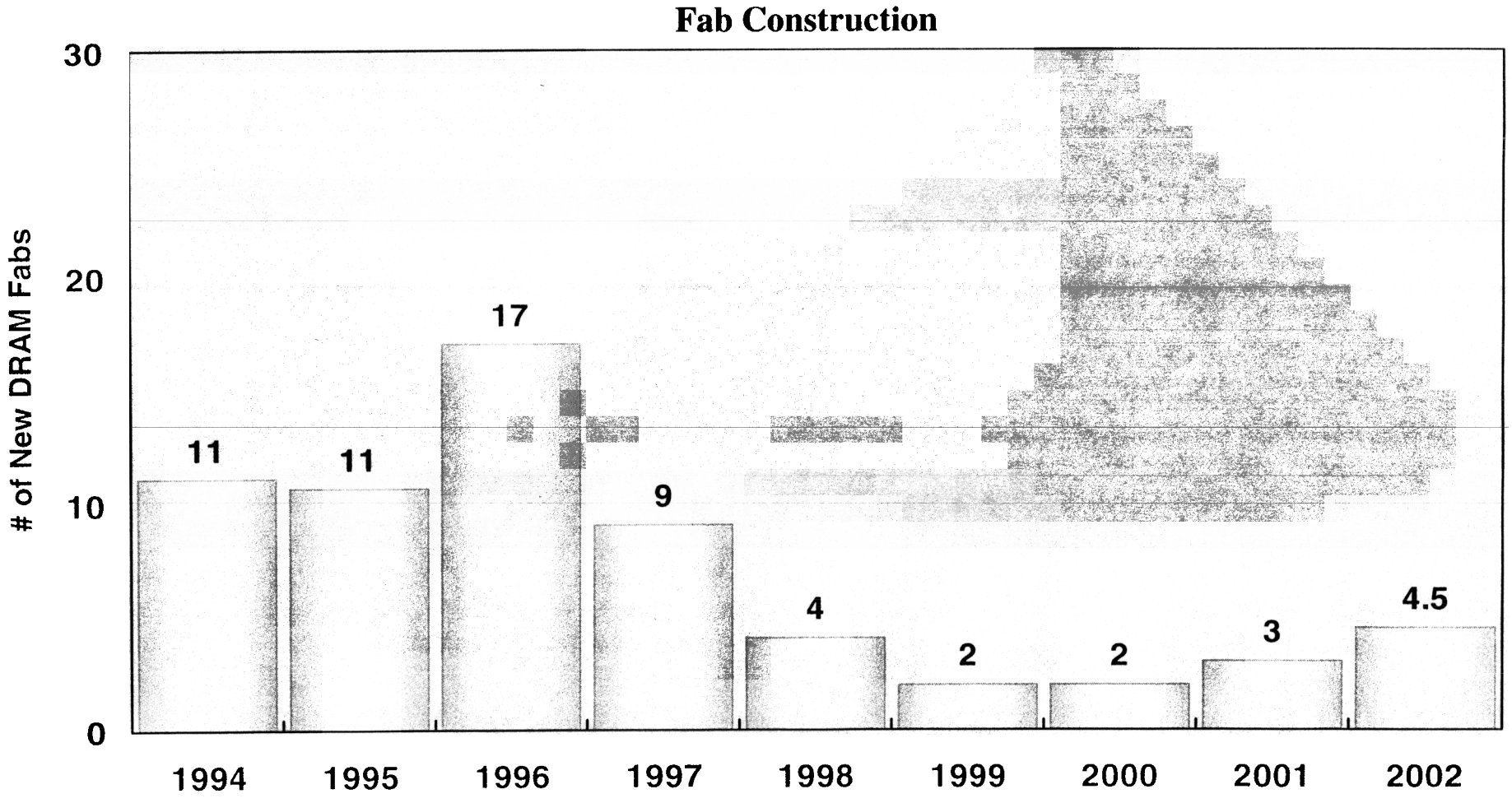
- Demand drivers – computers and IT spending – both collapsed during this period, and thus kept demand for DRAMs weak relative to historical patterns.

- Micron itself has characterized these declines as a "fundamental shift" in the demand profile.

***<u>This weak demand had nothing to do with Hynix</u>***

# *Supply is also an Important Factor*

# *Global supply increase has moderated*




*Source : SSB, UBS Warburg, WSTS*

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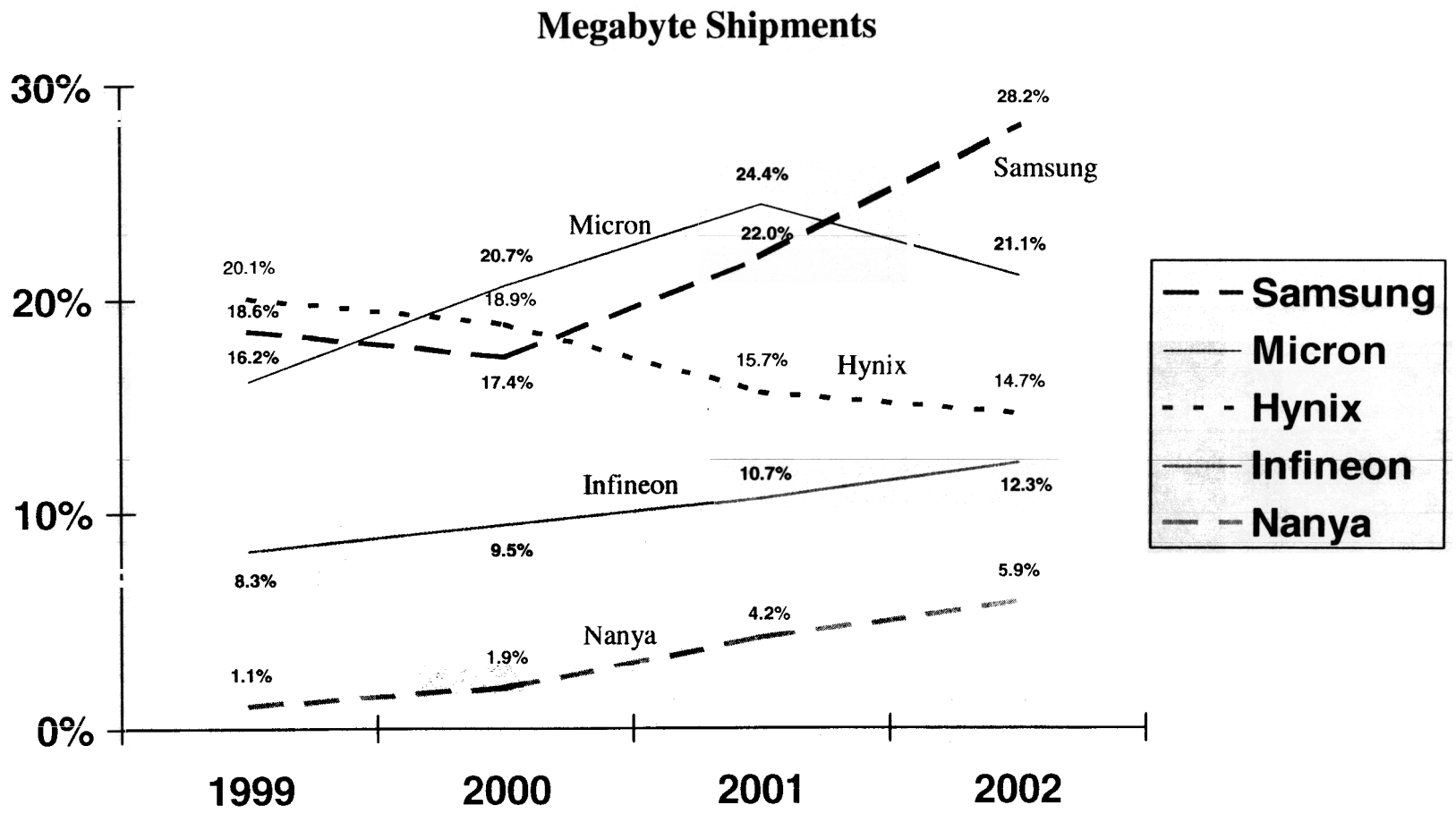
# *Worldwide DRAM Market Share*




*Source*: Gartner Dataquest

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# *Importance of supply-demand balance*

- Hynix's share of the market in 2000 did not cause a problem.

- Yet, since 2000:
  - Hynix market share has fallen by all measures, both globally and in the U.S.
  - Hynix has spent less on capital expenditures than others.
  - Hynix converted three 8" fabs to non DRAM products since merger with LG.
  - Hynix total wafer start capacity for DRAMs has decreased.

***Hynix cannot be blamed for the changes since 2000***

# *Summary:*

- As everyone agrees DRAM market is cyclical.
- Since late 2000 there was sharp drop in demand due weak demand in IT spending, and personal computers.
- During this period supply growth has been moderate, and Hynix growth was less than other key suppliers.
- Given the weak demand, prices fell.

***Hynix can not be blamed for price declines***