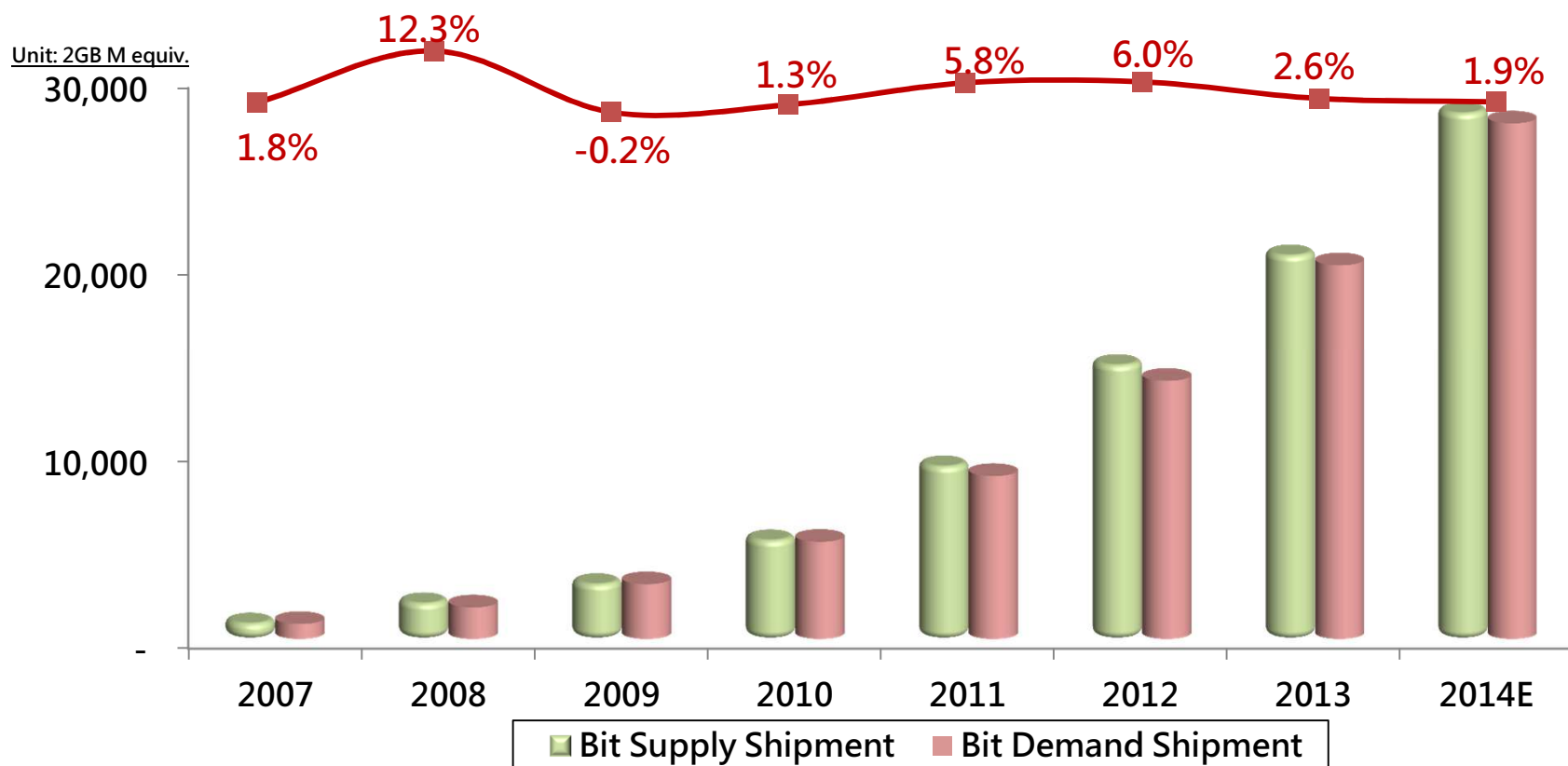


2014 NAND Market: Balance is the Theme

- 2014: Supply growth @38% YoY, Demand growth@39% YoY.
- NAND makers are profit-oriented and conservative toward supply strategy.
- Supply & Demand balance is a new paradigm.

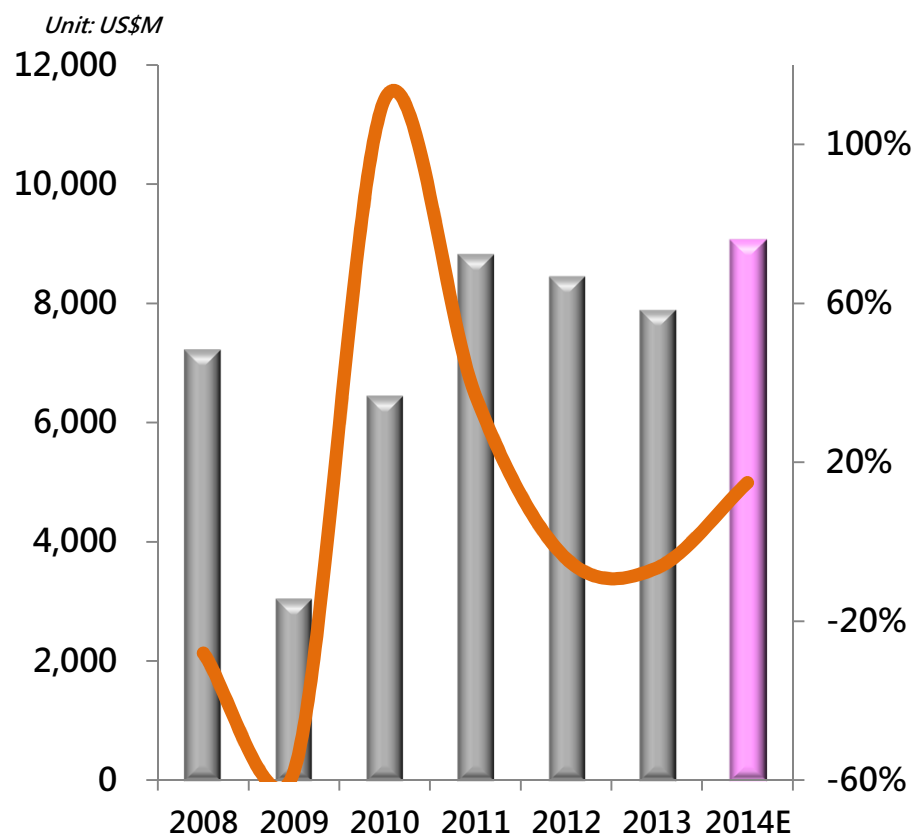


Source: DRAmExchange, June 2014

CAPEX: Preparation for 3D-NAND Era

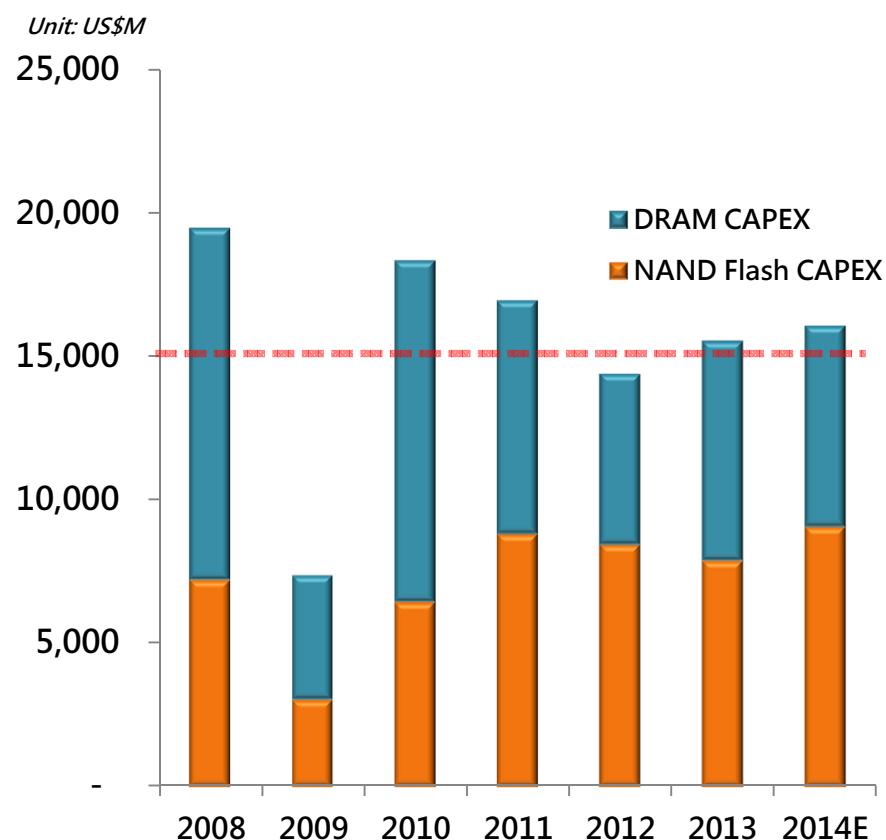
- 2014 CAPEX : US\$9.2 Bn with 15%yoy , mostly reserved for 3D-NAND in the future.
- Memory CAPEX is US\$15-16 Bn level, allocation favor on NAND.

NAND Flash CAPEX



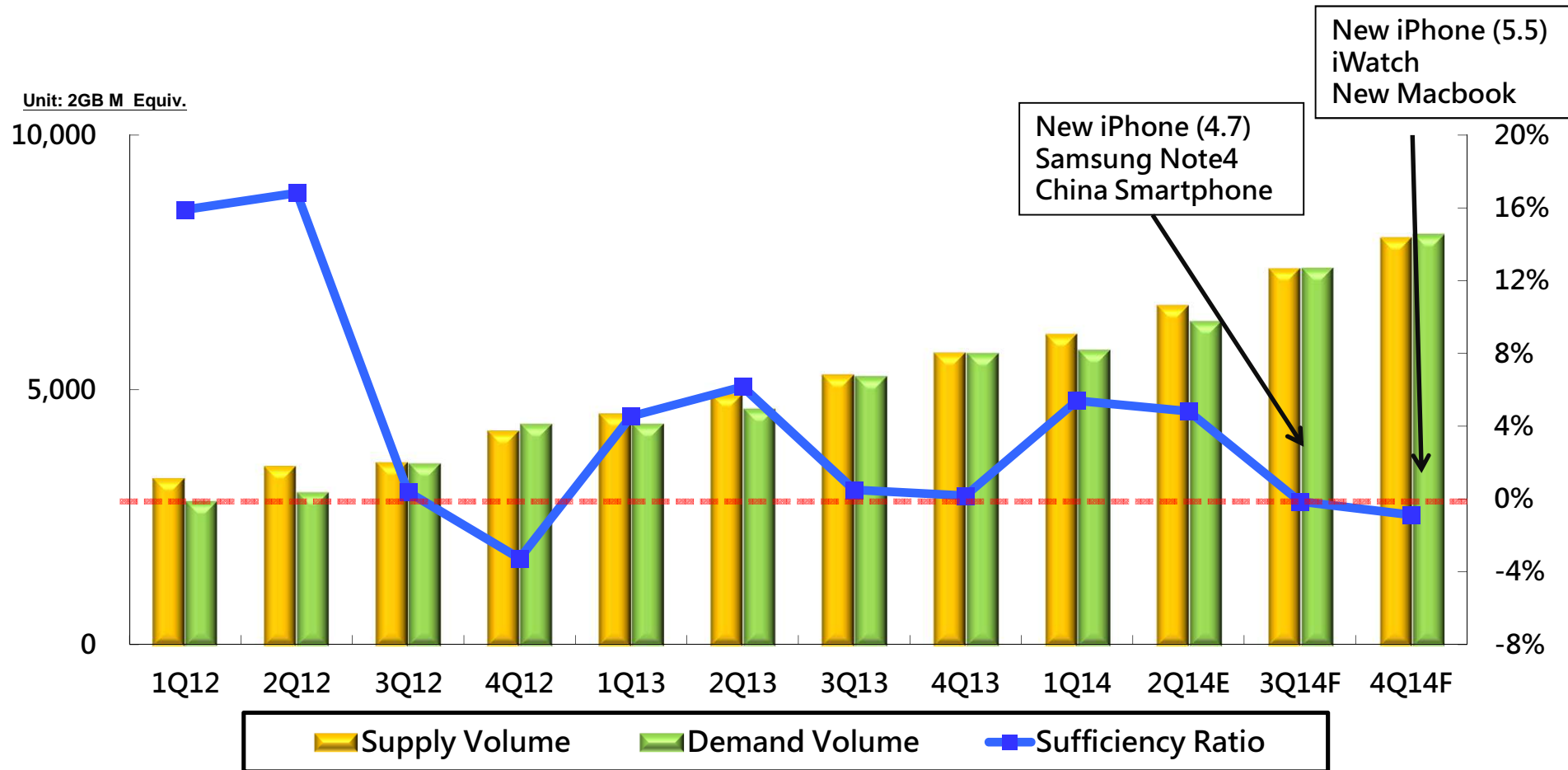
Source: DRAmExchange, June 2014

CAPEX: DRAM vs. NAND



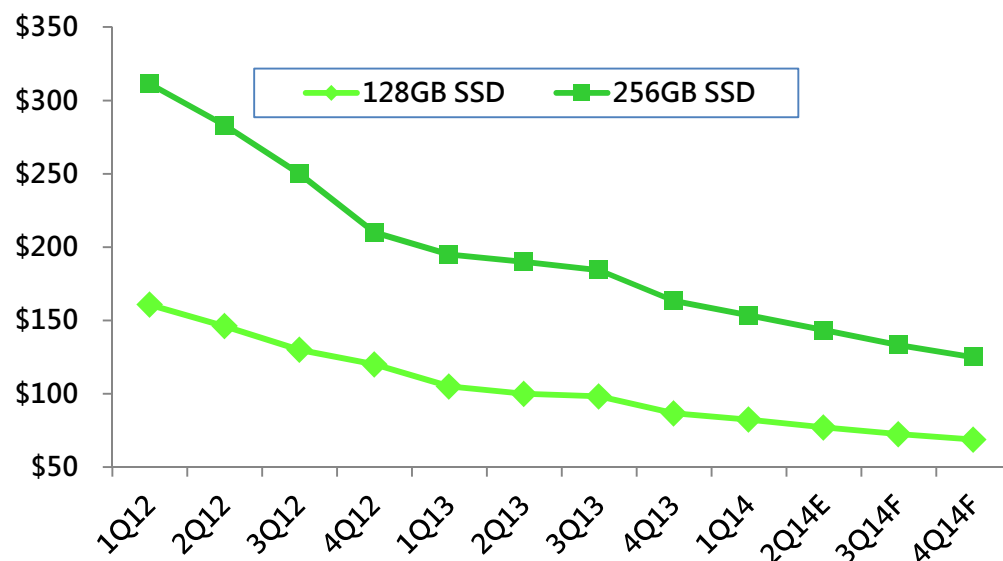
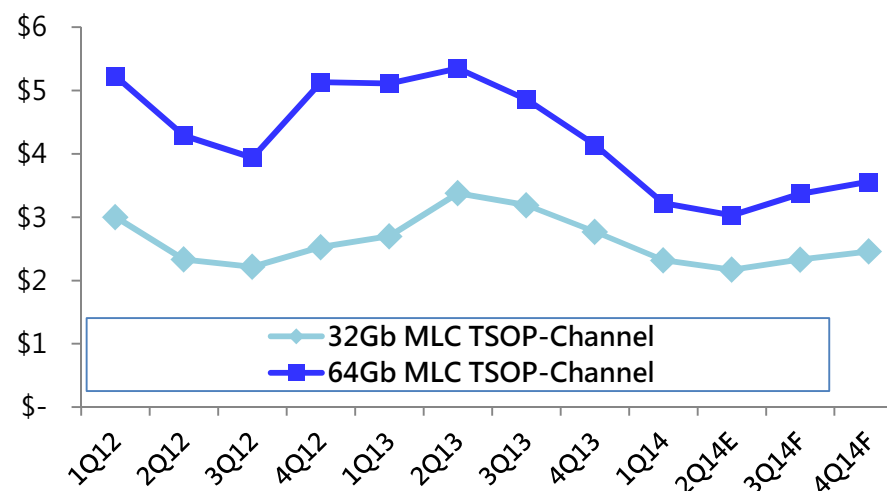
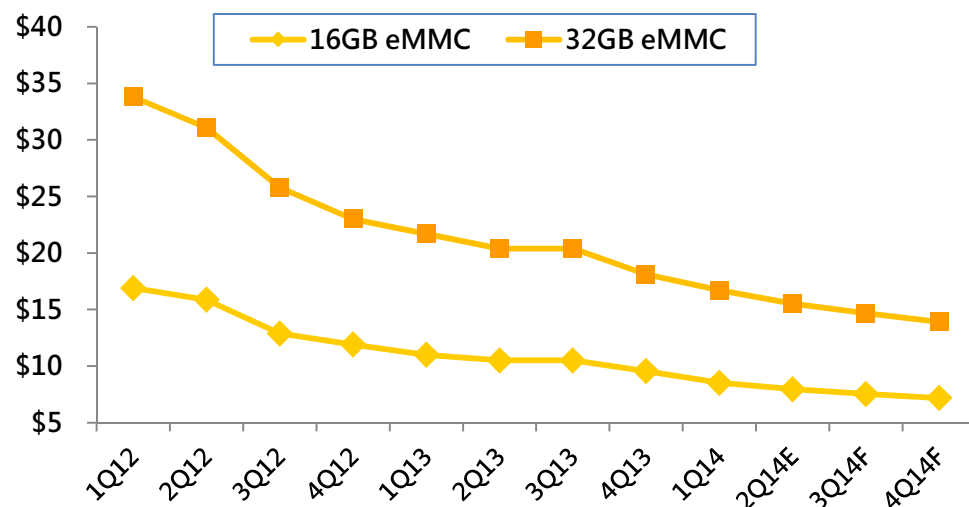
2014 Quarterly Sufficiency

- 1H14 Weaker OEM and retail market results in over-supply pattern.
- Momentum from new OEM demand helps to ease S&D imbalance in 2H14.



Source: DRAmExchange, June 2014

ASP Trend: Different Pattern for OEM and Channel



- Embedded (eMMC, SSD) price stably declined QoQ, mostly reflecting cost down from migration.
- Channel chip price is the mix of market supply and demand.

Source: DRAmEXchange, June 2014

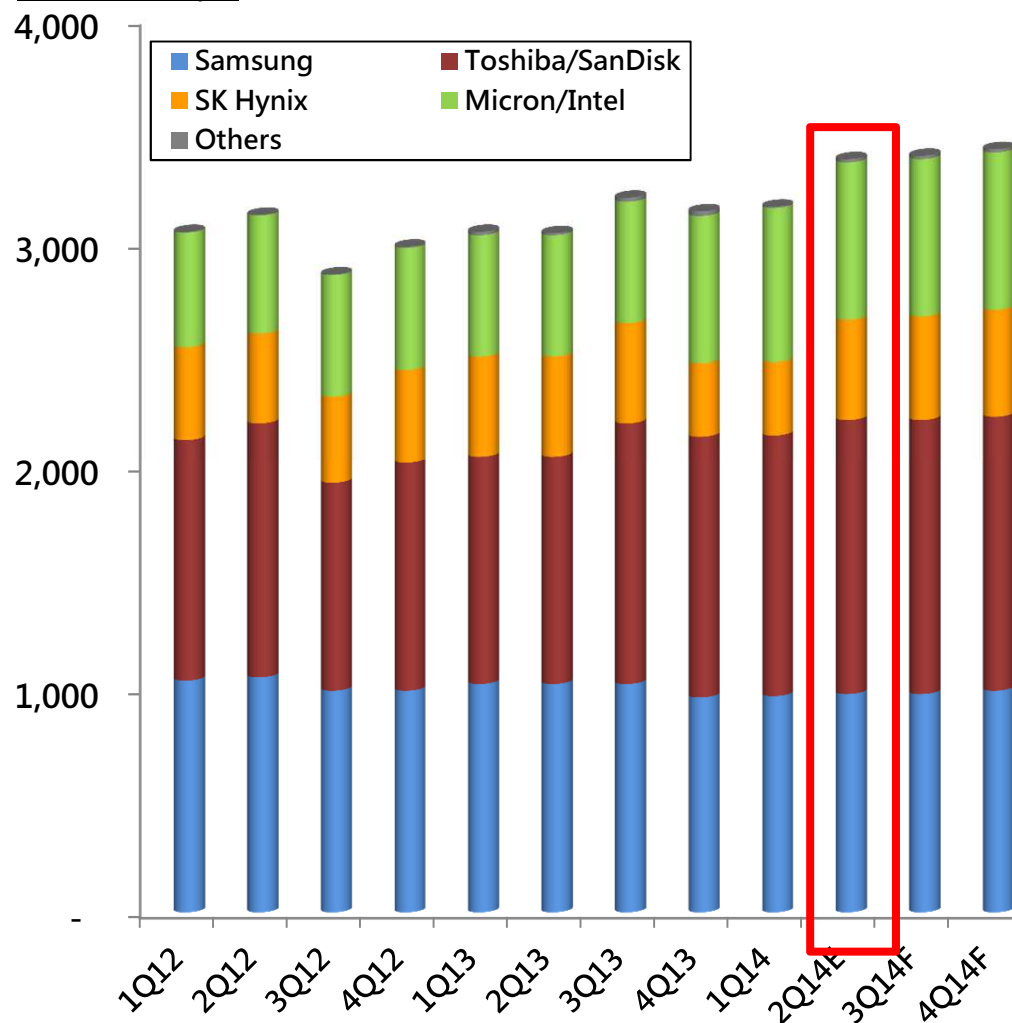


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NAND Capacity: Added Slightly for 2014

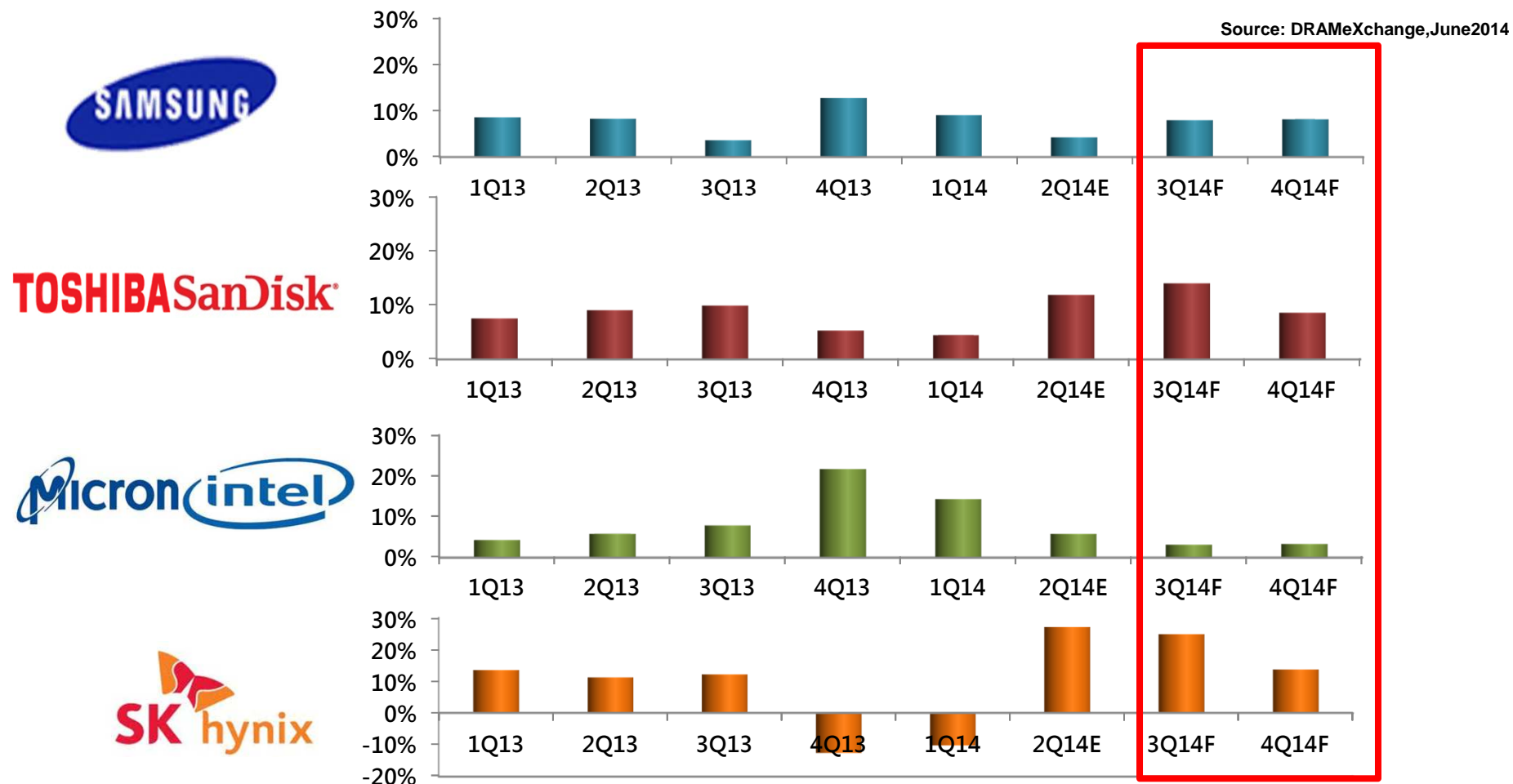
Unit: KPCs, 12" equiv.



Source: DRAMeXchange, June 2014

- 2014 NAND capacity +8% YoY.
- Hynix NAND capacity will be fully recovered from 142Q (150k/m).
- Micron Singapore fab transition will be completed, total Micron/Intel NAND capacity is up 235k/m from 142Q.
- Toshiba Fab5 Phase2 infrastructure is set from 14Q3, equipment installation from 14Q4.
- Samsung Xian fab and 3D-NAND schedules fall behind.

2014 Bit Output: Derived from Node Migration more



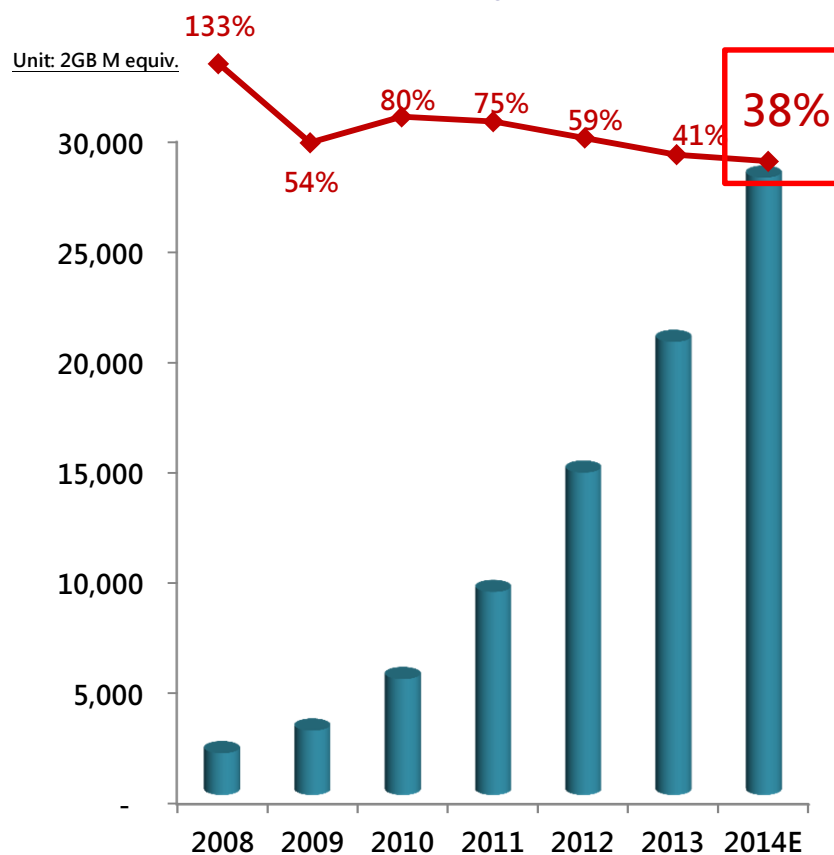
- Bit output is strongly driven by 1ynm embedded adoption and 1znm-class migration from 2H14.

Supply Dynamics: Limited Growth & Constant Share



- Supply bit growth is 7-year-low level.
- Market Share: SEC@37%, TSB/SNDK@35%, MU/INTL:@17%, Hynix:@10%
- Rational supply strategy is predictable under game theory.

Bit Supply Trend



Source: DRAMeXchange, June 2014

Market Share (Production Base)

