

***Case No COMP/M.4100 -
SEAGATE / MAXTOR***

Only the English text is available and authentic.

**REGULATION (EC) No 139/2004
MERGER PROCEDURE**

Article 6(1)(b) NON-OPPOSITION
Date: 27/04/2006

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COMMISSION OF THE EUROPEAN COMMUNITIES

Brussels, 27-IV-2006

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PUBLIC VERSION

MERGER PROCEDURE

ARTICLE 6(1)(b) DECISION

To the notifying party

Dear Sir/Madam,

**Subject: Case No COMP/M.4100 – Seagate / Maxtor
Notification of 20/03/06 pursuant to Article 4 of Council Regulation No 139/2004¹**

1. On 20/03/2006, the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 (hereinafter the “Merger Regulation”) by which the undertaking Seagate Technology (“Seagate”, USA) acquires within the meaning of Article 3(1)(b) of the Merger Regulation control of the whole of the undertaking Maxtor Corporation (“Maxtor”, USA) by way of purchase of shares.

I. THE PARTIES

2. **Seagate** designs, manufactures and globally markets rigid disk drives (also referred to as hard disc drives or “HDDs”) for a range of uses, produces thin-film recording media and read/ write heads that are used in its HDDs, and assembles a portion of the printed circuit boards that are used in its HDDs.
3. **Maxtor** is a global supplier of HDDs for a range of uses, including desktop computers, servers and consumer electronics applications and produces thin-film recording media that is used in its HDDs.

¹ OJ L 24, 29.1.2004 p. 1.

II. THE CONCENTRATION

4. Pursuant to the Agreement and Plan of Merger dated December 20th, 2005, Seagate intends to acquire all of the outstanding shares and thereby sole control of Maxtor. The transaction is therefore a concentration within the meaning of Article 3 of the Merger Regulation.

III. COMMUNITY DIMENSION

5. The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 billion² (EUR 6.2 billion for Seagate, EUR 3.15 billion for Maxtor in 2005). Both Seagate and Maxtor have a Community-wide turnover in excess of EUR 250 million (Seagate: EUR [...], Maxtor: EUR [...] in 2005), but they do not achieve more than two-thirds of their aggregate Community-wide turnover within one and the same Member State. The notified operation therefore has a Community dimension.

IV. RELEVANT MARKET

6. Both parties produce HDDs principally for original equipment manufacturers (“OEMs”) and large distributors. Seagate and Maxtor are both vertically integrated into the production of media (disks) which are components for the production of HDD. Seagate moreover produces read/write heads for HDDs. Neither Seagate nor Maxtor supply read/ write heads or media on the merchant markets.

Relevant product market

7. HDDs are compact high performance data storage devices that can be used in a wide range of applications, from storage area networks and other business storage systems, to desktop and laptop computers and a range of consumer electronics (“CE”) applications (digital video recorders (“DVRs”), gaming, MP3 players, handheld devices, mobile phones and motoring). In the industry, HDDs have customarily been categorized by reference to their end use, such as “enterprise”, “desktop”, “mobile” and “CE”.
8. HDDs store information on a magnetic film deposited on circular disks which rotate at high speed. The information is written and read by read/write heads positioned over the disks. Every HDD contains one or more disks – on average three – with an equal number of corresponding heads. The disks are composed of two main substances: a substrate material that forms the bulk of the disk and gives it structure and rigidity, and a magnetic media coating (“media”) which actually holds the magnetic impulses that represent the data.
9. Hard disk drives include several types of products which may be distinguished by four main characteristics: (i) form factor, (ii) rotational speed (and seek time), (iii) storage capacity and (iv) interface.
 - The form factor describes the size and format of a device currently ranging between 0.85” and 3.5”. Notebooks require HDDs with a form factor of 2.5”, whereas some CE applications

² Turnover calculated in accordance with Article 5(1) of the Merger Regulation and the Commission Notice on the calculation of turnover (OJ C66, 2.3.1998, p 25).

(e.g. MP3-players) need even smaller formats. In servers and desktops mainly 3.5” HDDs are used.

- Rotational speed indicates the speed of the disk movement and is measured in rotations per minute (rpm). HDDs currently reach 15,000 rpm. Higher rotation speeds allow end-users to run multiple programs simultaneously and without long waiting periods when opening files and switching between programs. The system performance therefore increases with higher rpm. System performance is, moreover, measured by the so-called “seek time” which does not relate to the disk movement but to the head movement. Both rotational speed and seek time influence the access time and the speed of data transfer of an HDD.
- Capacities of HDD are currently ranging between 2 GB and 500 GB. Higher capacity enables end-users to store more data on their HDDs. Since capacity is a function of the surface area of a disk, a larger disk will have a greater capacity than a smaller disk. The capacity of an HDD may be increased with an improvement in areal density, i.e. when more data can be stored on a square inch. The newest technology in this respect is “perpendicular recording” which is a way of packing bits on the disk more closely. The capacity of an HDD can also be increased with an addition of disks and heads.
- An interface is a device (incl. software) which connects pieces of hardware so that information can flow between these components of a system, here: between the HDD and the microprocessor of a computer. The choice of the interface therefore affects the data throughput. Interfaces have been defined as industry standards. Available alternatives are Parallel ATA³ (“PATA”, sometimes only “ATA”), Serial ATA (“SATA”), SCSI⁴, Serial Attached SCSI (“SAS”), Fibre Channel (“FC”) and Fibre Channel–SATA (“FC-ATA”). They differ with respect to several technological features, such as data transfer speed and flexibility as to their integration into different computer systems.

PATA has been the HDD interface for desktop PCs for over 15 years with interface data transfer rates of 1 and 1.3 Gigabits per second (“Gbps”). It has been also used for notebooks applications and is currently phased out. It is replaced by SATA which allows for higher interface speeds and has meanwhile reached data transfer rates of up to 3.0 Gbps. SCSI and FC are more sophisticated and higher-valued interfaces with data transfer rates of up to 2, 2.5 and 4.0 Gbps. The SCSI segment has started to transition to the SAS interface which offers a number of technological advantages. Its interface data transfer rate is 3.0 Gbps with a technological potential of further future increase.

10. In 2002, the Commission found in its decision *Hitachi / IBM*⁵ that 3.5” SCSI HDDs were mainly used in server computers in enterprise applications, 3.5” IDE/ATA HDDs mainly in desktop computers, and 2.5” IDE/ATA HDDs for mobile, i.e. notebook applications. On this basis, the Commission considered different markets for HDDs for servers in enterprise applications, for desktops and for mobile applications, ultimately leaving open the exact market definition. HDDs with form factors smaller than 2.5” were not affected in *Hitachi/IBM*.

³ ATA = Advanced Technology Attachment, also known as Integrated Drive Electronics („IDE“)

⁴ SCSI = Small Computer System Interface

⁵ COMP/M.2821 Hitachi / IBM

11. The parties submit that the boundaries between these formerly considered markets have been blurred because different types of HDDs are increasingly used across applications, which would militate for a wider market definition. In particular, two new trends were indicated in this respect: the increased usage of SATA drives in enterprise applications, and the growing share of 2.5” HDDs for enterprise applications.
12. The market investigation has, however, broadly confirmed the Commission’s earlier product market definition. HDD producers regularly sell different HDD models for enterprise, desktop, mobile and consumer electronics applications. The majority of respondents have stated during the market investigation that HDDs for different applications have functional characteristics (form factor, rotational speed, capacity, interface) which are unique to the respective application and limit demand-side substitutability. Enterprise HDD customers require a high degree of reliability and performance, whereas customers of desktop HDDs usually put more emphasis on capacity but do not need high performance in terms of data access time since desktops often do not run as many different applications at the same time as enterprise servers do.
13. Seagate’s product list⁶ shows clear differences between the products which are offered for enterprise, desktop and mobile use. The following table gives an overview which broadly complies with the product offerings of competing HDD producers:

Indicated application	Capacity (Gigabytes)	interface data transfer rate (Gbps)	Rotational speed (rpm)	Seek time (ms)
Enterprise HDD	37 - 400	1.5, 3.0, 3.2, 4.0	7,200 – 15,000	8.0 – 3.5
Desktop HDD	10 - 500	1.0, 1.5, 3.0	5,400 – 7,200	12.5 - 8.0
Mobile HDD	30 - 120	1.0, 1.5	4,200 – 7,200	12.5 - 10.5

14. Seagate as well as other competitors, such as Western Digital, offer SATA-HDDs for enterprise applications. The use of SATA interfaces for enterprise applications does, however, not justify a broader market definition covering desktop and enterprise applications since SATA-HDDs for enterprise use apparently differ from SATA-HDDs used for desktops. As Seagate’s internet product list shows, Seagate does not simply sell its desktop HDDs for applications in both markets, but has a specific model line for enterprise HDDs using SATA (“NL 35”, here: “NL-SATA”). The price of NL-SATA is much closer to the traditional enterprise HDDs with SCSI and FC interface than to SATA and PATA drives for desktops. This was confirmed by a price analysis provided by the parties. This regression analysis on average price data of the different HDDs takes into account product characteristics, such as different capacities, and the mix of products over time. While according to the analysis in the last quarter 2005, this average price of Seagate’s SCSI, FC and SAS HDDs ranged between [150-200] US-\$, SATA drives for desktop HDDs reached only [70-85] US-\$. The corresponding price of the NL-SATA was [160-170] US-\$.⁷
15. The performance of NL-SATA HDDs appears to be at the lower limit for enterprise applications. There might, therefore, be some overlap in the lower enterprise and the higher desktop segments. The market investigation has, however, not shown any indication as to a broad substitutability of

⁶ Seagate’s product list as published on www.seagate.com, 26 March 2006.

⁷ A simple calculation of average prices would not lead to differing results in this respect.

enterprise and desktop HDDs which would result from a use of SATA interfaces in both markets. This also results from the fact, that the higher price of enterprise HDDs would not be accepted by the more price-sensitive desktop customers.

16. In the same way, the market investigation has shown that some respondents see 2.5" products as relevant for enterprise applications in the future. Such a development might result from the fact that 2.5" HDDs need less space, less cooling and less power and could decrease the customers' costs of operating their IT-systems. However, the current use of 2.5" HDDs in enterprise applications is only marginal. For instance, Seagate's sales of 2.5" HDDs in the enterprise segment are very limited not going beyond [0-10]% of the total Seagate's enterprise HDD sales in the calendar year 2005. The market investigation did not indicate any significant current demand for 2.5" HDDs for enterprise applications. Moreover, there is clearly no demand-side substitutability the other way around, since 3.5" HDDs cannot be used for mobile applications due to their size.
17. These results militate against demand-side substitutability which would justify a broader market definition covering several applications. On the supply-side, some substitutability exists depending on the strategy of the individual producer to use a common platform for the production of each HDD product. In particular, a producer already active in the production of desktop and enterprise HDD might be able to switch production between the two markets due to their identical form factor and the already existing know-how in both applications if the general production strategy allows for such flexibility.
18. However, the switch into a neighbouring HDD application (e.g. from enterprise into desktop) requires the corresponding development of the product. The corresponding change of the existing capacity appears to be possible in a fairly limited time ([less than] 2 years) and with a limited investment (according to competitors' estimates between 8 and 20 million US-\$ depending on the number of product characteristics to be changed). The change would be easier if the new product does not differ in too many characteristics from the original product, in particular with respect to the form factor. This does, however, not seem to allow for a short-term switch in production. In practise, competing HDD producers indicated to have changed their existing production capacity only to a limited extent in the past, such as from PATA to SATA and from 4,200 rpm to 5,400 rpm. The ultimate market definition can, however, be left open, since the merger does not lead to competition concerns under either alternative market definition according to applications (overall HDD or enterprise HDD and desktop HDD).

Geographic market

19. The Parties take the view that the relevant geographic markets for HDDs, are global in scope. In particular, HDD production facilities are located principally in Asia and the United States, and HDDs are supplied world-wide from these facilities. Further, transport costs are low, relative to the value of HDDs, and there are no significant barriers (tariff or otherwise) to trade. Contracts with OEMs are typically global in scope, and are negotiated on the basis of a single world-wide price (albeit with regionalised delivery).
20. The market investigation has given strong indications that the geographic scope of the HDD markets is indeed world-wide. Supply patterns are global, while also demand follows dynamics which do not seem to be linked or dictated by regional patterns of customer behaviour. No significant price differences across regions or countries were reported. Therefore the market in the present case can be considered to be at least EEA-wide but the exact market definition can be left open since the analysis of this case does not differ under alternative market definitions of world-wide and EEA-wide markets.

V. COMPETITIVE ASSESSMENT

Horizontal effects

21. The Parties will have substantial market shares in the enterprise HDD market and in the desktop HDD market and will take a leading position in both markets. The market investigation has, however, not brought about any reasons for serious doubts as to the transaction's compatibility with the Common Market.
22. The following table summarizes the global market shares of the Parties and their competitors in the year 2005. The market shares contain captive sales by Hitachi, Samsung, Toshiba and Fujitsu who are active on the downstream market for computers. Since these captive sales are, however, only of small size, the indicated market shares of the parties rise only marginally if these captive sales by the parties' competitors are excluded (at maximum 3%):

<i>Market shares in %</i>	Seagate	Maxtor	combined	Western Digital	Hitachi	Samsung	Toshiba	Fujitsu	ExcelStor
Overall HDD	[25-30]	[10-15]	[40-45]	[15-20]	[15-20]	[5-10]	[5-10]	[5-10]	
Enterprise HDD	[45-50]	[10-15]	[60-65]	[0-5]	[10-15]			[15-20]	
Desktop HDD	[30-35]	[20-25]	[50-55]	[25-30]	[5-10]	[10-15]			[0-5]

23. A similar market structure prevails on EEA-wide level, where the same competitors are active. The parties would reach combined market shares of [45-50]% on an overall HDD market, [60-65]% on a market for enterprise HDD and [50-55]% on a market for desktop HDD.
24. The market investigation has shown that the market conditions will not allow for an independent pricing behaviour by Seagate.
25. In the past, the market shares have shown some volatility on a quarterly as well as on an annual basis. According to the parties, Seagate's annual market share reached values between [20-25]% and [25-30]% within the years 2000 and 2005 in the overall HDD market. Western Digital's market share ranged between [10-15]% and [15-20]% and Hitachi's market share between [15-20]% and [15-20]%.⁸ These changes in market shares were at times stronger on a quarterly basis and per HDD market. On a quarterly basis, Seagate's market share in HDDs for desktops, for example, fluctuated over the past 5 years in a range of [10-15]% (difference between the smallest and the largest quarterly market share in this time period). In enterprise HDDs, this fluctuation was [15-20]% for Seagate. Maxtor reached at maximum quarterly market shares which differed by [15-20]% for desktop HDDs, and [10-15]% for enterprise HDDs.⁹
26. Most customers have confirmed during the market investigation that they will continue to have sufficient possibilities to switch between suppliers. Usually, HDD suppliers have to pass a qualification procedure with each OEM and for each model they want to sell. The OEMs mostly qualify two to three suppliers from whom they regularly source HDDs in 3 months contracts. From quarter to quarter, the customers can and do shift purchasing volumes between their qualified suppliers. The quarterly supply schedules which some customers provided for the years 2003 to 2005 show that shifts between suppliers of up to 10% of the total value or volume

⁸ Parties' estimates based on Gartner Dataquest (February 2005).

⁹ Parties' estimates based on IDC data.

sourced per HDD market or per individually defined HDD products occur regularly. Apart from this, larger shifts between suppliers (up to 40%) occurred occasionally within these two years from one quarter to the next one.

27. Several market participants accordingly indicated their expectation that Seagate will not be able to capture Maxtor's full market share but that Maxtor's share will be allocated at least in parts to the other competitors, since OEMs will tend to shift volumes from the merged entity to the other producers in order to continue their multi-sourcing strategy. According to the parties, this phenomenon apparently already occurred following the Quantum / Maxtor transaction in which Maxtor had after two years lost more than [35-40]% of Quantum's market share.
28. The market investigation confirmed that the customers, such as HP, IBM and Dell have a large buyer power which mainly results from their multi-sourcing strategy and the possibility to shift volumes on comparably short-term basis. One OEM even indicated that an entry into the enterprise / desktop HDD markets by HDD producers who are so far active only in the mobile or CE markets could be "sponsored" by an OEM if an additional supplier was needed.
29. The investigation did not bring about indications that capacity constraints could restrict the Parties' competitors. Most of the competitors confirm that additional capacity for existing product lines can be added easily as it happens regularly against the background of increasing demand. According to information provided by competitors an addition of capacity for the production of 1 million additional HDDs per year would take a lead time of 3 to 6 months and incur investments of 6.5 to 8 million US-\$.
30. The responses by market participants have confirmed that while entry from companies not having been active in this field before might not be easy, entry from neighbouring markets (enterprise, desktop, mobile) is possible. In the past, comparably quick exits and entries into the different HDD markets have occurred, mainly by HDD producers active in neighbouring markets. Western Digital left the enterprise HDD market in 2000 and re-entered only in 2005 reaching an immediate market share of 5%. Samsung left the 2.5" HDD market in 1997 (remaining in the desktop HDD market) and re-entered in 2004. Exelstore entered the desktop market in 2001 without having been active in one of the other HDD markets before.
31. Maxtor can, moreover, not be regarded as the closest competitor to Seagate. During the market investigation, Seagate was mostly characterised as a leading innovator while Maxtor has been lagging behind in terms of financial strength, cost efficiency and thereby innovation. An overview of the main innovations introduced by the different competitors in the enterprise and the desktop segment in the recent years shows that Seagate was in many instances the first company to offer a new technologically enhanced product while Maxtor was mostly one of the followers.
32. At the same time, it also appears that Maxtor has not taken the role of an imitator putting price pressure on the innovator by copying a successful product and selling it to a lower price, so that it cannot be seen as an important competitive force in the market. Generally the distances in time between the introduction of new products by the competitors are too short to allow for a imitation. In most cases, the immediate follower introduced its product one or two months after the first innovator. Maxtor's introduction never occurred more than [5-10] months later. The development of a new product takes, however, according to information provided by competitors mostly 12 to 24 months. It can, therefore, rather be assumed that all competitors are in a race to transfer the newest technological developments into their products. Also in this respect, Maxtor cannot be regarded as the closest competitor to Seagate since the immediate followers on the innovations changed frequently in the past.

33. The HDD markets have shown declining prices in the past, high rates of innovation, leapfrog competition and short product life-cycles. The parties provided data concerning the life-cycles of their main model lines within the past five years. In nine cases the product life-cycle started and ended during this period. The duration of the respective products ranged between 5 and 13 quarters. In most instances, a new generation product was launched during the on-going life-cycle of the previous one. Due to these dynamics of the markets and the number of players remaining in the market after the merger, the transaction does not give rise to competition concerns with respect to horizontal effects.

Vertical effects

34. It was stated by market participants that the transaction may have adverse effects on the business of component suppliers and on competition in the HDD markets. Seagate is vertically integrated into the production of heads and media (disks). Maxtor is only vertically integrated in media and sources heads from merchant component suppliers. The merger would remove Maxtor as a customer of these HDD components due to the internal production of heads by Seagate. This could lead to shrinking market volumes for the head suppliers who would have less financial resources for R&D with the consequence of less innovative components and possibly higher prices. This could deteriorate the position of the parties' vertically non-integrated competitors on the HDD markets.
35. However, the Commission's market investigation has confirmed that such a scenario is highly unlikely for the following reasons.
36. It is not evident that there will be a significant reduction in the volume of heads acquired from external suppliers by the combined entity. The parties stated that post merger they plan to source 10-15% of their heads requirements from external suppliers. Pre merger Maxtor acquired between [35-40] and [40-45] million heads a quarter whereas Seagate did not acquire any heads but used [80-100] million heads a quarter which were internally produced. If the combined entity sources 10 to 15% of the heads requirements externally, it will acquire between [10-15] and [20-25] million heads a quarter from component suppliers. Therefore, the potential reduction of volumes acquired would be in the range of [15-20] to [30-35] million units which represents only between [5-10]% of total quarterly volumes of global production of heads.
37. Even if the merging parties shifted Maxtor's supply of heads from external sources towards captive supply, this would according to the parties require a transitional period of 9-12 months including both contractual and production features. Indeed, it would not be in the interest of the merged entity especially in the transitional phase to disrupt any of Maxtor's current supply relationships.
38. It is unlikely that the merger will lead to any significant reduction of the size of the market for heads. First, the market investigation has shown that market participants do not regard vertical integration as an absolute advantage for the production of HDDs. The fact that component manufacturers usually warrant the quality of their components was mentioned by competitors of the parties as an advantage of not being vertically integrated. High fixed costs in terms of internal production were also regarded as a disadvantage of vertical integration. Second, both the heads market and the market for HDDs are expected to grow. The demand for heads grew by 40% in 2005 and is expected to grow 25% during 2006¹⁰. This seems plausible since HDD producers

¹⁰ „HDD Recording Head Information Service Quarterly Update, CQ4 2005“ in Trend Focus, 10 February 2006, page 2.

with a combined inhouse/external sourcing strategy as well as vertically non-integrated producers of HDDs, such as Samsung and Toshiba, will continue to source heads from external suppliers. As regards the market growth of HDDs, Gartner Dataquest forecasts that the use of HDDs in desktop computers will increase by 50% and in enterprise applications by approximately 25% by 2009 (on the basis of 2004).

39. Thirdly, market participants have indicated that head suppliers are sometimes able to offer a newer, more innovative technology, in particular where the purchasing HDD producer's internal supply tended to focus on higher-volume, lower-margin and slightly older products. For example, in August 2005, Toshiba shipped an HDD using TDK/SAE perpendicular heads, which was the first HDD using perpendicular technology. In turn, the existence of new third party component technology creates an incentive for vertically integrated producers of HDD to innovate within its own component production. Competition between integrated and non-integrated manufacturers of heads spurs innovation by both.

VI. CONCLUSION

40. For the above reasons, the Commission has decided not to oppose the notified operation and to declare it compatible with the common market and with the EEA Agreement. This decision is adopted in application of Article 6(1)(b) of Council Regulation (EC) No 139/2004.

For the Commission
Neelie KROES
(signed)
Member of the Commission