



UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
WASHINGTON, D.C. 20549

DIVISION OF  
CORPORATION FINANCE

March 27, 2013

Via E-mail

Mr. Jeffrey A. Graves  
President and Chief Executive Officer  
MTS Systems Corporation  
14000 Technology Drive  
Eden Prairie, Minnesota 55344

**Re: MTS Systems Corporation  
Form 10-K for the Fiscal Year Ended September 29, 2012  
Filed November 28, 2012  
Response Letter Dated March 14, 2013  
File No. 000-2382**

Dear Mr. Graves:

We have reviewed your response letter and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter within ten business days by providing the requested information, or by advising us when you will provide the requested response. If you do not believe our comments apply to your facts and circumstances, please tell us why in your response.

After reviewing the information you provide in response to these comments, we may have additional comments.

Form 10-K for the Fiscal Year Ended September 29, 2012

Cash Flow Comparison, p.32

1. Refer to your response to prior comment 1:
  - It appears that the purchase and sale event for purposes of Section 5 of the Securities Act occurred at the time you entered into the agreement in September 2012. Please provide us your analysis of the exemption that was relied on for the shares that you may, in your sole discretion, issue in settlement of the agreement if any amounts are due at that time.

- Please explain to us, if known, whether the Seller (as defined in the agreement) intends to retain or distribute the shares it may receive per the agreement. In that regard, we would like to understand (1) whether the Seller may use the shares to close short positions (including returning to the lenders borrowed shares) and (2) what type of hedging activity the seller has engaged or may engage in relating to the your shares and when such hedging positions may be closed out relative to the date of the initial agreement and the date that the shares are issued.
  - If the Seller intends to engage in hedging activities during the term of the agreement, please explain to us your understanding of what exemption from registration the Seller may be relying on for such transactions and whether such transactions should be considered part of a distribution of your shares, in light of the settlement provisions of the forward contract.
  - From section 3.01(e) of the agreement, it appears that the number of shares that you may be required to deliver per the agreement will vary depending on the price that the Seller establishes for your shares. It appears that you will have an obligation to pay a specified amount to the Seller either in cash or shares. If that is the case, it is unclear how the Seller could determine the price of the shares to be delivered in settlement of the payment obligation that is different from, or at a discount to, the publicly traded price of your shares. The agreement also references a private offering. Please explain to us the purpose of the private offering and whether there is any potential that the Seller could determine (and thereby affect) the value of the consideration to be paid at settlement if the payment is made in your shares. Also tell us where your disclosure explains the effects of these provisions to investors.
  - Please show us how the accelerated repurchase plan affected named executive officer compensation, including the re-calculated EPS used to adjust the payments under your Executive Variable Compensations Plan. Also tell us how you disclosed this effect of the accelerated repurchase plan on compensation. Address in your response the cost of the repurchase program, including fees, discounts and dilution and how you disclose this cost.
2. We note the attachments provided in response to the second sentence of prior comment 1. However, it appears that you have not included the “Agreement” mentioned in the second paragraph of exhibit 10cc to your 10-K. Please tell us why you believe that agreement need not be filed; we note for example that the meaning of some terms in exhibit 10cc is set forth in that agreement.

Notes to Consolidated Financial Statements, page F-7

Note 1 – Summary of Significant Accounting Policies, page F-7

-Stock Purchases, page F-15

3. We note your response to prior comments 1 and 4. We note from page 2 of your response that you provide the Initial Number of Shares of your common stock that JPM delivered to you on September 11, 2012 along with a calculation referred to as the Settlement Number, which is the ultimate number of shares to be delivered by you to JPM. We further note from page 4 of your response that Section 6.04(a) of the ASR agreement provides for a maximum number of shares you could be obligated to issue JPM at any one time in order to avoid issuing shares in excess of the number authorized shares authorized under your Articles of Incorporation. Please provide us with an example of a situation whereby you could be obligated to issue shares to JPM in excess of the Initial Number of Shares you received on September 11, 2012 and whereby you would be in a position to issue the maximum number of shares to JPM outlined in Section 6.04(a) of the ASR agreement. Provide us with the calculations that support your example.
4. You state on page 3 that the settlement alternatives available to you under the ASR agreement have the same economic value associated with them. Please explain in more detail why you believe that the settlement alternatives have the same economic value associated with them considering one of the settlement alternatives is to settle in unregistered shares based upon JPM determining the price per share of your common stock in a private placement.

Representations

5. We note that the acknowledgements you have provided are not in the exact form as requested. Please provide the three acknowledgements included at the end of our February 28, 2013 comment letter. For your reference, we have repeated the acknowledgements below.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

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In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

You may contact Gary Newberry, Staff Accountant, at (202) 551-3761 or Tara Harkins, Reviewing Accountant, at (202) 551-3639 if you have any questions regarding comments on the financial statements and related matters. Please contact Sally Brammell, Staff Attorney, at (202) 551- 3779, or Russell Mancuso, Legal Branch Chief, at (202) 551- 3617 if you have questions on any other comments. In this regard, do not hesitate to contact me at (202) 551-3643.

Sincerely,

/s/ Kevin L. Vaughn

Kevin L. Vaughn  
Accounting Branch Chief