Journal of Accountancy

Volume 53 | Issue 5 Article 4

5-1932

# Auditor's Responsibility for Inventories

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By T. G. Douglas

There appear to be increasing growth and insistence in the demand of commercial bankers for the assumption by public accountants of complete responsibility with respect to the item of inventories appearing on audited balance-sheets used for credit purposes. It is believed that this demand has resulted to a large extent from failure on the part of public accountants to make clear to bankers these two important facts:

That practical obstacles render it impossible, except in rare instances, for the public accountant to take or supervise the physical inventories of his clients and thus assume that complete responsibility.

That in every properly conducted audit steps are taken to verify, by every means available, the substantial accuracy of the quantities shown by the inventories and the fact that the commodities are salable or usable, and that these steps are sufficient in most cases to disclose any material discrepancies in quantities or the inclusion of any considerable volume of obsolete or slow-moving stock. By "material discrepancies" is meant discrepancies which involve a money value sufficiently large to have a bearing on the client's financial position.

After all, the banker can scarcely seek more than the assurance that the same degree of reliance may be placed on the item of inventories as, say, on the item of the reserve for bad debts. The banker will no doubt feel he has that assurance when he understands that the auditor who is properly qualified for his work exercises diligence and all the skill and resources at his command to satisfy himself concerning the physical aspects of inventories (as well as the clerical accuracy and the basis of valuation) just as he employes diligence, skill and available information to determine the adequacy of the reserve for bad debts. He would no more consider relying solely on the certification by responsible officers concerning quantities and marketable condition of the inventories than upon the assurance of the credit manager that all bad and doubtful accounts had been written off and no losses

would be sustained in realization of the accounts receivable carried on the books.

Perhaps the best definition of the auditor's responsibility with respect to inventories is that set forth in the pamphlet *Verification of Financial Statements*, issued in its revised form by the federal reserve board in May, 1929. That definition is given below:

"The auditor's responsibility with regard to inventories falls naturally into three main divisions—

(a) Clerical accuracy of computations, footings and recapitulations.
(b) Basis of pricing.
(c) Quantities, quality and condition.

"The auditor's responsibility under the first two headings is clear. He must undertake sufficient investigation of the inventories to satisfy himself that the clerical work has been accurately done and that the goods are valued in accordance with the usual commercial practice—that is, at cost or market price, whichever is lower.

"With regard to the quantities, quality, and condition of stock, the auditor's duties and responsibilities vary with the circumstances of each case. The auditor is not a valuer and can not have intimate knowledge of many classes of business. He must generally rely for information as to quantities, quality and condition upon the responsible officers and employees of his client, which he should supplement by such tests and confirmations as his skill and experience may indicate for the type of enterprise which he is examining. In the case of a business in which the verification of quantities, quality and condition does not call for technical knowledge and presents no substantial difficulties, his responsibility is greater than it is in others where expert knowledge is essential to the correct determination of quantities, quality and condition of the stock or where the volume is very large. The auditor must, however, use diligence in every case to convince himself that quantities, quality, and condition are correctly recorded."

It may be well to point out that the pamphlet referred to is submitted by the federal reserve board for the consideration of bankers, merchants and manufacturers as well as accountants and auditors. The fundamental principles laid down in it have been adopted almost universally by the public accounting profession as a guide in the verification of financial statements. For this reason, if for no other, it would seem that every bank credit officer should be familiar with the contents of this pamphlet, as he would thereby be helped to a better understanding of the scope of the work undertaken by public accountants. However, it may be remarked parenthetically that nothing is so helpful to a better understanding of the mutual problems confronting banker and accountant as the existence of local chapters of the Robert Morris Associates and of the state society of accountants and the close coöperation of those two bodies.

In the foregoing definition of the auditor's responsibility with regard to inventories it is stated that "the auditor is not a valuer and can not have intimate knowledge of many classes of business."

Maurice E. Peloubet, in an excellent article which appeared in the December, 1928, issue of THE JOURNAL OF ACCOUNTANCY, has cited several classic examples (which are by no means far-fetched) of the difficulties which confront the auditor who would undertake also the functions of a valuer. One of these examples concerns the auditor engaged in taking and valuing the inventory of a jobber in jewelry, which includes, among other things, unset precious stones; another, the inventory of a manufacturer of heavy machinery which includes, among other things, various alloy steels. In neither of these instances, as Mr. Peloubet points out, would the determination of quantities and weights be particularly difficult, but it would indeed require an auditor of remarkable attributes to recognize and classify the colors and imperfections in the various precious stones and the nature and percentages of the alloys in the steels, all of which have a direct bearing on the value of the commodities.

Further extraordinary talents would be required to enable the auditor to place a value on the remaining articles to be found in the inventories of the jobber in jewelry and the manufacturer of heavy machinery, to say nothing of those he would have to possess when in the course of his practice he moved on to the inventory of a manufacturer of chemical compounds, a jobber in hardware, a textile mill producing cloth of mixed cotton and wool, an oil refinery, a department store—but the list can be extended indefinitely. Moreover, if an auditor were possessed of all these unusual qualifications he would still be unable to exercise them all in taking and valuing the inventories of his clients, unless he were possessed also of the ability to be in several places simultaneously, for it is safe to assume that the majority of his clients close their books on December 31st.

Many bankers recognize, at least to some extent, the difficulties which now confront the public accountant who endeavors to take or supervise his clients' physical inventories, but they believe that ways and means could be devised to overcome those difficulties and thus enable the public accountant to assume, in every instance, complete and unqualified responsibility for every aspect of the inventories. In fact, a banker once suggested this end could be achieved if firms of public accountants (at least those whose practice is national in scope) would maintain, as an adjunct to their accounting staffs, a corps of men thoroughly qualified by technical training and experience to take and value the inventories

of their clients. The services of this corps would be available to all offices of the firm and the technical training and experience of its individual members would be sufficiently diverse to cover the entire range of industries represented by the firm's clientele.

This is indeed an arresting suggestion but, quite apart from other considerations which render the scheme impracticable (such as the difficulty of securing men so qualified), the expense of maintaining an adequate corps of technical experts would make the cost of audits absolutely prohibitive. It is obvious that the field of each member of the inventory corps would necessarily be restricted to a few related industries and that a sufficient number of men of similar qualifications would have to be retained to meet the requirements of all clients represented by those industries. Therefore, members of the inventory corps would be idle much of the time and it is altogether possible that a group of, say, twenty-five clients would be called upon to bear the annual salaries and traveling expenses of perhaps fifty or more men required to take and value their inventories. This, of course, would be in addition to the fee for the remainder of the audit.

Now let us return to the inventories of the jobber in jewelry and the manufacturer of heavy machinery and see what steps could be taken by the auditor who remains within his province as a verifier of financial records (by which is meant all records having a bearing on his clients' financial position) to satisfy himself that, to adopt the language of the federal reserve board, "quantities, quality and condition are correctly recorded." First of all, he would ascertain by whom and in what manner the inventories were taken and valued, in order to determine whether or not responsible and qualified employees had been assigned to the work and adequate measures had been taken to safeguard against errors in count, description, valuation and computations. These enquiries would, of course, indicate whether a deliberate misstatement of quantities or values could be accomplished by one employee or would require collusion on the part of two or more and whether those in position to falsify the inventories would have an interest in doing so. They would also reveal the nature and extent of the available records, reports and memoranda which could be referred to as a check on the quantities, quality and condition of the commodities.

Having thus obtained a comprehensive idea of the strength or weakness of the inventory plan and the records with which he

had to work, the auditor could then determine the method of verification to be employed. However, before proceeding with the work of verification he would ascertain whether the rate of gross profit earned during the period under review on the basis of the inventories submitted to him varied materially from the rate earned in previous periods; he would also compare it with the rate earned by other jobbers in jewelry (or manufacturers of heavy machinery) during the current period if, as is frequently the case, that information were available to him. A comparison of the rates of gross profit earned from year to year is highly informative, but the competent auditor will never lose sight of the fact that uniformity of rate is by no means conclusive evidence that the inventories are substantially correct as stated. For example, the apparent maintenance of the jewelry jobber's rate of gross profit might have resulted from an over-valuation of inventories sufficient to offset the decline that actually may have taken place as a result of trade conditions. By the same token, a noteworthy fluctuation in the rate of gross profit does not necessarily mean that the inventories are incorrectly stated, but it does put the auditor on notice to see that the fluctuation is accounted for logically and to his entire satisfaction.

A "spot check" of quantities and descriptions shown by the inventories could then be made. Qualified employees of the client would be called upon to point out all the precious stones of a certain description or value per carat (or steel containing a given percentage of a specific alloy) on hand at the time the "spot check" was undertaken. These would be counted and weighed by the auditor and the quantities would be traced back to the date of the inventories by the application of quantities shown by authentic records to have been purchased, sold and used in manufacturing operations during the intervening period.

The number of different articles selected by the auditor for the purpose of this "spot check" would depend upon circumstances but in any event would be sufficient to afford a comprehensive test of the inventories.

This procedure would reveal any errors in the quantities and description of those particular articles appearing in the inventories, unless, of course, those errors were exactly perpetuated, through accident or design, by improper description of the quantities on hand at the date of the "spot check" or in the records for the intervening period. The accidental occurrence of that

condition would be extremely improbable and to accomplish it by design would require an extraordinarily good memory on the part of the person doing it. However, if the auditor had the slightest reason to suspect that such a condition existed he could obtain a further check by ascertaining the quantities of those particular articles shown by the inventories at the beginning of the period under review and could build up book inventories at the end of the period by the application of quantities purchased, sold and used in manufacture during the period.

The facility with which book inventories could be built up or the auditor's count carried back to inventory date would depend entirely upon the nature and extent of the records, but the fact remains that it could be done with sufficient accuracy to disclose discrepancies of substantial amounts even if it entailed, in the case of diamonds, for example, the classification of every purchase and sales invoice within certain narrow limits of price range per carat. For this purpose, the yield per carat disclosed by sales invoices could be reduced to approximate cost (and thus classified within its appropriate price range) by the application of the average percentage of gross profit earned per carat, as revealed by the examination of all purchases and sales invoices during the period under review.

A comparison of the quantities of a given article included in the inventories with the sales or use of it during a period of time sufficient to cover the natural business cycle would afford enough information to form the basis of an inquiry concerning slow-moving and obsolete stock. This information must be amplified by the knowledge of the current trend of demand and of abnormally large purchases made because of temporarily favorable market conditions.

In both instances mentioned above, the nature of the commodities makes it possible to determine quantities by actual count, weight or measurement when taking physical inventories. However, it sometimes happens that the quantities shown by physical inventories are, as a matter of practical necessity, based to some extent on estimates. When that is the case, the auditor must satisfy himself that the estimates are predicated on conclusions sufficiently logical to withstand criticism and to be productive of substantially accurate results. The following instance will serve to illustrate this point; it also indicates somewhat the extent to which authentic records may be utilized in the course of an audit.

An auditor was engaged in making his initial examination of the accounts of a steel mill which had previously been examined by another auditor. This mill had on hand several thousand tons of heavy melting steel scrap and cast scrap consisting of the usual assortment of irregularly shaped objects such as boilers, radiators, car wheels and axles, railroad rails and spikes. The company did not then follow the practice of segregating scrap into several distinct piles and keeping a record of the track scale weights of the scrap placed in each and confining withdrawals to one pile until that pile was exhausted; instead, all the scrap was piled along the runway of a traveling crane, and one book inventory account was kept for each class of scrap. This runway had nine well defined "bays" formed by the uprights supporting the crane track, two of which were reserved for cast scrap, while the remaining seven were given over to heavy melting steel scrap.

As it was obviously impracticable to move several thousand tons of scrap in order to obtain the actual weight, the inventory of scrap was taken in the following manner:

Each "bay" was sub-divided into fifteen sections, the actual dimensions of which were, of course, known. Measurements were taken from the crane to the top of the scrap pile in the exact center of each section and thus the height from the ground was ascertained.

Proceeding on the assumption that irregularities in stacking would tend to offset each other, the company looked upon each section as a perfect pyramid. As both the base and altitude of each of these pyramids were known the theoretical cubic content of the scrap pile was readily computed as between the two bays containing the cast scrap and the remainder containing the heavy melting scrap.

The cubic content was converted into tons by the application of the rate of 60 pounds to the cubic foot in the case of heavy melting scrap and 75 pounds in the case of cast scrap. These rates were determined by the plant superintendent and plant engineer in the light of their experience as to how such scrap would stack.

The book inventories which the company kept for each class of scrap showed the quantity on hand at the beginning of the period (which had also been determined in the manner set forth above), the actual track scale weight of purchases less the customary trade allowance for dirt, rust, etc., and the scale weight of with-

drawals as shown by the furnace-charging reports, and the auditor made comprehensive tests of the authenticity of those records by reference to the documents supporting the entries. The discrepancy between the book and physical inventories was not so great that it could not be accounted for by a reasonable variation in the actual amount of dirt and rust from the trade allowance for those factors. The computations of cubic content of the scrap pile, duly supported by original documents showing the engineers' measurements, as well as the conversion into tons, had been verified by the auditor and, with one possible exception, the assumptions entering into those calculations seemed logical, and the results appeared to have been borne out in a general way by the relatively small discrepancy between book and physical inventories.

The exception was the conversion rate of 60 pounds to the cubic foot in the case of heavy melting scrap and 75 pounds in the case of cast scrap. Neither the plant superintendent nor the plant engineer was able to furnish more tangible evidence in support of those estimated rates than the assertion that experience had taught them that scrap would stack so as to average approximately those weights. While the auditor had not the slightest reason to doubt the sincerity of these assertions or the practical knowledge of the men giving them, he was not content to accept the estimated conversion rates without making a strong effort to obtain proof of their substantial accuracy, despite the fact that his certificate accompanying the accounts would necessarily state that the inventories were "certified as to quantities and marketable condition by responsible officers of the company."

The auditor thought it reasonable to suppose that scrap stacked in freight cars would average about the same weight per cubic foot as that in the scrap pile. Therefore, it appeared that, if it were possible to ascertain the cubic content of a number of freight cars in which deliveries had actually been made, an approximate conversion rate could be established, as the track scale weight of the scrap in those particular cars would be known. Inquiry revealed the fact that an equipment record was published by the railroads which contained precisely the information required, and the auditor's resultant tabulation yielded weights per cubic foot for each class of scrap which bore out very closely the conversion rates of 60 pounds and 75 pounds estimated by the plant superintendent and plant engineer. In preparing the tabulation the

auditor was careful to maintain the proper ratio between the number of cars loaded to weight capacity, those over-loaded and those under-loaded and thereby to avoid arriving at a fallacious average.

The methods of verifying the clerical accuracy and bases of valuation of inventories and of proving title to the merchandise will not be discussed here. Those methods are more or less obvious in principle and the auditor's responsibilities with respect to them are clear. However, it should be emphasized that those phases of inventory work lend themselves much more readily to accidental or intentional misstatements than do the physical aspects and that their verification is possible only by reference to records and documents the examination of which falls within the recognized province of the auditor.

It is not the purpose of this article to suggest that no misstatements of inventory quantities or descriptions, whether accidental or intentional, can take place without detection by the auditor. However, it is the purpose to point out that misstatements involving sums sufficiently large to have a bearing on the client's financial position will rarely go undiscovered by the auditor who is thoroughly qualified for his work as such if his instructions permit him the latitude to exercise those qualifications.