

3-1927

Effects of Inflation on German Accounting

Henry W. Sweeney

Follow this and additional works at: <https://egrove.olemiss.edu/jofa>



Part of the [Accounting Commons](#)

Recommended Citation

Sweeney, Henry W. (1927) "Effects of Inflation on German Accounting," *Journal of Accountancy*. Vol. 43 : Iss. 3 , Article 3.

Available at: <https://egrove.olemiss.edu/jofa/vol43/iss3/3>

This Article is brought to you for free and open access by the Archival Digital Accounting Collection at eGrove. It has been accepted for inclusion in Journal of Accountancy by an authorized editor of eGrove. For more information, please contact egrove@olemiss.edu.

Effects of Inflation on German Accounting *

BY HENRY W. SWEENEY

I. IMPORTANCE OF THE SUBJECT

1. Importance to students of prices

Whenever the subjects of extremely fluctuating price levels and monetary inflation to a serious degree merit attention, students of those questions must sooner or later turn to Germany for information. In Germany was not only the best modern illustration of such undesirable conditions to be found—in fact, the best illustration of all history—but also the most hopeless collapse of any monetary unit. In the United States there is still the saying, "Not worth a continental," to describe a lack of value. This saying refers to the paper money issued by the continental congress of revolutionary days, a paper money so depreciated that humorists of those days even papered walls with it. Such continental money, however, until the final date for redemption, after which the money was entirely worthless as such, never even approached the fall of the German mark. The mark fell in five years from its pre-war value of ten forty-seconds of the United States dollar (that is, a little less than twenty-four cents) to a value of one-fourth of that figure—a not unprecedented fall—and in the ensuing period of somewhat over four years it fell to a value (?) of less than one-trillionth of its pre-war worth! The final rate of redemption for the paper mark was expressed evenly as follows: 1 gold mark = 1,000,000,000,000 paper marks.

In the United States prices have not, of course, fluctuated to nearly so extreme a degree as in Germany. Nevertheless, even in the United States the last thirteen years have witnessed price changes significant enough to draw the attention of people quite ignorant of economics. The subject of prices is, therefore, sufficiently important to justify a survey of the country that best illustrated all phases of the topic.

2. Importance to accountants

Regarded from the more technical viewpoint of accounting, the problems faced and solved by German accountants during the

* NOTE.—The writer desires to acknowledge his indebtedness to Dr. B. Hahnebach, formerly with the Dresdner Bank of Essen, now with Patterson & Ridgway, and to Mr. E. Elmer Staub, formerly partner at the Berlin office of Lybrand, Ross Bros. & Montgomery, now partner of E. E. Staub & Co., who have kindly given the benefit of their criticism.

Effects of Inflation on German Accounting

period of absurd price fluctuations are quite worthy of study by accountants of all other countries. For the problems associated with keeping and interpreting financial records that must be expressed in a monetary unit oscillating even hourly are problems that the rest of the world must face to a less extreme degree.

Aside from even the great importance of the subject, however, its interest is great enough to justify description of the effects of monetary inflation upon accounting, with particular reference to the German experience.

II. DESCRIPTION OF GERMAN INFLATION, 1914-1923

The official currency of the German empire at the outset of inflation in 1914 was the imperial mark (Reichsmark), a paper money redeemable at that time in gold. After the great war began in 1914, the imperial mark, or "paper mark," began to depreciate in value and to fall with increasing celerity until it was stabilized in the closing months of 1923 by issue of the annuity-mark (Rentenmark), also a paper money but redeemable in interest-bearing obligations based on mortgages on German private property. Since 1924, operation of the Dawes plan is resulting, among other things, in gradual retirement of the temporary rentenmarks and the issue of a mark redeemable in gold, like the mark of pre-war days. The rentenmark is to be retired in not less than seven nor more than ten years after 1924.

Probably the best description of the course of depreciation of the official mark, monetary depreciation and inflation usually being closely related, is the following table taken from *Germany's Economy, Currency and Finance*, a study addressed by order of the German government to the committees of experts, as appointed by the reparations commission (p. 60).

PAPER MARK EQUIVALENTS OF GOLD MARKS					
Period	1914	1915	1916	1917	1918
January.....	1.000	1.083	1.353	1.458	1.389
February.....	1.000	1.102	1.334	1.470	1.413
March.....	1.000	1.126	1.375	1.519	1.432
April.....	1.000	1.137	1.350	1.565	1.459
May.....	1.000	1.137	1.294	1.589	1.526
June.....	1.000	1.147	1.314	1.749	1.640
July.....	1.000	1.151	1.334	1.815	1.786
August.....	0.997	1.155	1.347	1.868	1.844
September.....	0.996	1.154	1.363	1.837	1.850
October.....	1.015	1.160	1.371	1.891	1.671
November.....	1.047	1.192	1.415	1.854	1.837
December.....	1.019	1.284	1.481	1.511	2.083

The Journal of Accountancy

Period	1919	1920	1921	1922
January.....	2.056	14.776	15.553	47.911
February.....	2.277	23.582	14.602	54.194
March.....	2.557	19.697	14.877	72.655
April.....	3.081	14.208	15.134	67.414
May.....	3.088	11.073	14.840	65.985
June.....	3.291	9.322	16.523	89.211
July.....	3.406	9.403	18.263	159.603
August.....	4.252	11.372	20.084	410.910
September.....	5.363	13.811	24.991	393.050
October.....	6.034	16.229	35.779	1,071.959
November.....	8.677	18.399	62.641	1,822.331
December.....	10.805	17.395	45.720	1,750.866

1923		1923	
Period	Paper mark	Date	Paper mark
January.....	11,672	Oct. 5th....	142,927,853
February.....	5,407	Oct. 11th....	1,205,358,227
March.....	4,997	Oct. 15th....	895,681,212
April.....	7,099	Oct. 19th....	2,858,557,060
May.....	16,556	Oct. 31st....	17,270,448,905
June.....	36,804	Nov. 5th....	100,049,497,000
July.....	262,034	Nov. 7th....	150,074,246,000
	Date	Nov. 19th....	600,296,983,000
Aug. 15th.....	643,175	Nov. 20th....	1,000,494,971,000
Aug. 31st.....	2,453,595	Nov. 30th....	1,000,494,971,000
Sept. 17th.....	31,491,770	Dec. 15th....	1,000,494,971,000
Sept. 28th.....	38,114,094	Dec. 27th....	1,000,494,971,000

NOTES.—The figures for the years 1914 to 1921 represent monthly averages, those for the years 1922 and 1923 the value at the end of the month or day in question.

The figures have been obtained: For the year 1914 by taking as a basis the mark exchange in Stockholm, for 1915 to 1919 the mark exchanges in Zurich and Amsterdam, for 1920 to 1923 the dollar exchanges in Berlin.

\$1=4.197 922 15 gold marks.

The mark collapse became so rapid toward the end of 1922 that there were insufficient existing payment media to meet the requirements of the enormously increased prices. This situation was met by the issuance of what was termed emergency money, in accordance with the act of July 17, 1922, and later amendments thereto. Altogether, emergency money of legal and illegal nature issued was estimated at 306 quadrillion marks.

An interesting illustration of the rapidity of depreciation is a paper mark in the writer's possession. It was issued by the Bavarian State Bank under date of September 20, 1923, and was to have represented one billion (eine Milliarde) marks. But by the time the notes were printed, the mark had depreciated so fast that issue of the notes at their printed amounts did not seem

Effects of Inflation on German Accounting

worth while. Hence, in script there was stamped across each note the new amount that it was to represent. This particular note was thus made to be equivalent to 50 billion marks—instead of the amount originally intended, one billion!

Incidentally, in the issue of such emergency money the literary and poetic aspects of German nature were given expression, for some communities and towns issued money with poetry on it. Others issued money that in its various series represented important events in the lives of great men and peoples. Some of such issues have become very valuable and are eagerly sought by collectors.

III. EFFECTS OF THE MONETARY INFLATION UPON ACCOUNTING

Now that the importance of the subject has been explained and the extent of inflation described, the main topic of this article will be discussed.

1. Effects of monetary depreciation upon book figures

The first, although not the most obvious effect of monetary depreciation is that the entries in the books and accounts are not representative of the same real unit that they apparently express.

A business man in Germany, for example, could not properly ascertain the progress or decline in sales by comparing the paper mark sales of January, 1922, with those of January, 1923, inasmuch as a mark in the former period was much higher in value than a mark in the latter. Such comparison violates the mathematical principle that dissimilar items can not properly be compared with one another.

According to the mark depreciation table previously quoted, a gold mark in January, 1922, had an average value of 47.911 paper marks, whereas in January, 1923, it had a similar kind of value of 11,672 paper marks. After 1922 there was no necessity of making quotations with decimal points inasmuch as the decimals were too insignificant in meaning. Inasmuch, therefore, as the ordinary mark of January, 1922, had an actual, real value, judged by the quotations above, of more than 243 times that of the ordinary mark during January, 1923, a business man had to divide his revenue and expense figures for the latter month by 243 to place them on comparable bases with the corresponding figures of January, 1922. The mark depreciated so rapidly in 1923, as a matter of fact, that the use of any equivalents other than daily ones was

likely to prove misleading. In the latter half of 1923 a comparison of the uncorrected daily figure of one day with a similar figure of even the previous day was generally erroneous procedure.

2. Effects of monetary depreciation upon determination of profit and loss

Closely related to the first effect is the influence of a fluctuating price level upon the showing of profit or loss. To illustrate, let it be supposed that a man bought goods for 1,000 M when the mark was worth par and entered this amount as a purchase, and that he sold the goods for 1,500 M when the currency had depreciated to 50 per cent. of the value that it possessed when the goods were bought, and entered this amount as a sale. According to the books, then, a profit of 500 M resulted because the book figures ordinarily do not provide for showing money amounts in terms of money equivalents.

This kind of profit is an "apparent profit" (Scheingewinn). But the true result was a loss because the goods were sold at less than actual cost in terms of the current price level. If they had been sold at 2,000 M when prices had doubled, there would have been neither profit nor loss (ignoring expenses other than purchase cost). Inasmuch as they were sold for only three-fourths of their cost price, therefore, one-fourth of the capital invested in the goods was lost—although the books showed a profit of 50 per cent. on cost.

A good strong example of the difference between apparent and real profit is Prion's, a merchant, supposedly saying, "The more that I earn as a merchant, just so much poorer do I become; and the more that I receive, just so much more incapable of paying do I become." * This is not altogether correct. The profit that is only apparent is, obviously, better than none. In such cases, nevertheless, the real net worth may remain higher if no sales are made and the goods merely held.

In order to prevent the occurrence of such true losses in the guise of apparent profit, Mahlberg, Schmalenbach and other German writers advocated selling goods at their replacement costs plus profit. In practice such a formula will probably give an approximate maintenance of real capital, although its direct object is maintenance of only material capital.

* Quoted from Mahlberg, *Bilanztechnik und Bewertung bei schwankender Waehrung* (3rd ed. rev., 1923), 6.

Maintenance of *nominal* capital, which may be kept intact by maintenance of the same mere money amount, is short-sighted when money is depreciating in value. Maintenance of *material* capital, which may be maintained by constant ownership of the same amount of material quantities, may be poor business policy if the same goods in the same quantities are not required for business needs, and it may not be capital maintenance according to a sensible interpretation, because the original goods being maintained in kind and quantity may be decreasing in general economic desirability (i. e., value) over a period of time. Hence, maintenance of value, not of mere physical equivalence, insures preservation of the same economic power over goods and services, and such preservation, which is maintenance of *real* capital, is much more worth-while.

3. *Effects of monetary depreciation upon maintenance of real capital*

Closely related to the second effect is the tendency of a fluctuating price level to cause under- or over-maintenance of the real capital invested in all expenses. This fact has been most obvious in the case of depreciation and accounts for the relatively large number of recent advocates of depreciation based on replacement cost.

a. The view that depreciation should be calculated on replacement cost

When prices in general were rising rapidly in the United States after 1913, various people interested in business and accounting noticed that the old orthodox method of calculating depreciation on original cost was leading to incorrect results. The capital invested in the depreciating asset, although nominally maintained so far as mere book figures were concerned, was really not being kept intact because general values were being expressed in higher amounts as a result of rising prices and, nevertheless, the book values ostensibly representing depreciation were being based on price levels in existence when the respective depreciable assets were acquired or constructed. The evidence of such incorrect depreciation, they said, was apparent in the fact that assets obtained when prices were lower and depreciated on such costs could not be replaced with the proceeds of such depreciation reserved, because prices in general had risen. Hence, they concluded—and quite properly—that depreciation on book figures

during periods of general price fluctuation should be regarded with suspicion. They also concluded—and quite improperly—that depreciation should be based on replacement cost in order that the capital invested in the asset could be maintained.

b. The view that depreciation should be based on original cost per books

The orthodox accountants, the older members of whom had perhaps learned a rigid set of principles and rules in days when little or no provision had to be made for fluctuating prices, violently disagreed and continued to maintain that depreciation should be based on original cost. Probably the best argument they put forth was that the only capital that can depreciate in the case of a fixed asset is the capital actually invested, and that to base depreciation on replacement cost is to base depreciation on a figure that does not represent capital invested in the asset. The object of depreciation was, then, to maintain the capital invested in the cost of the asset, and the only way to maintain such capital was to base depreciation on such cost, not on what the cost might have been if the asset had not been obtained when it was. They declared that depreciation should continue to be calculated on original cost as shown by the books. Hence, they concluded—and quite properly—that depreciation should be based on original cost. They also concluded—and quite improperly—that it should be calculated on the amount of original cost shown on the books.

c. Depreciation should be based on original cost adjusted for general price change

Each of the two opposing views may be regarded as about half right, a combination of the correct idea in each view thus giving the proper depreciation theory. The orthodox school is correct in saying that depreciation should be based on cost; the “depreciation on replacement” proponents are correct in saying that the book figure for original cost should not be used as the depreciation basis in times of fluctuating price levels.

The writer, combining the two views, thus believes that the object of depreciation should be to maintain the capital invested in an asset; that such capital means the real capital, which is most properly represented at acquisition date by its relation to other goods and services, i. e., its economic command over them as shown by its price in relation to their prices; and that the only

way to maintain such real capital during a period of fluctuating prices is to express in the current price level the equivalent of the real capital estimated to have disappeared in the form of such depreciation.

The simplest example is the case of a depreciable fixed asset acquired at, say, a cost of \$100 and subjected to complete depreciation in a following period when the price level has doubled. At the date of acquisition the economic power of the asset, viz., its real capital, was represented by the price paid for it, namely, \$100. In the period when the depreciation occurs, the real capital is no longer represented by \$100, because that amount existed at the purchase date, when prices were only at one-half of their present level. The current expression of the economic power originally invested in the asset is \$200 because prices have doubled. The current expression of the real capital is, therefore, \$200 and depreciation should be based on that figure. Inasmuch as the depreciation is assumed to be complete in the second period, the depreciation entered on the books should be \$200, not \$100. It will be observed that no mention has been made of any replacement price, which may have been more or less than \$200 but which should have no effect on the amount of depreciation calculated.

Such a method of depreciation computation is necessary to protect the seller and manufacturer of goods from loss of real capital in setting sales prices and in paying out profits as dividends. If, for instance, one-fourth of the value of an asset is consumed by depreciation during a period, one-fourth of such original value should be entered as a cost. The calculation should not be based on a figure representative of a lower price level, because such procedure will give a figure that if left uncorrected will be too low to represent expression in the current price level of the actual original value consumed by depreciation.

The method just described maintains real capital. Only the essence of this method has been discussed. Supplementary description could explain the technique needed to prevent the reserve from eventually exceeding the original cost and to meet other detailed objections. The depreciation-on-replacement school advocates maintenance of material capital. And the orthodox school advocates maintenance of only nominal capital. Of the two schools the former is probably more nearly

right, inasmuch as during periods of changing price levels the depreciation-on-replacement-cost method should more nearly approximate the correct result (depreciation on original cost as adjusted for the change in price level) than depreciation on mere original cost as it appears on the books. Certainly, the former is the safer one for business to use if capital is to be protected.

To the extent that orthodox accounting theory has its way during periods of severe monetary depreciation and calculates depreciation on original cost per books, there is danger that the capital of the community will be encroached on because goods are consumed without equivalents for their real respective costs being received. The equivalents actually withheld, representing depreciation, are based on the same amounts as the original real costs, but such amounts withheld are not expressive in depreciated price levels of the actual values that they would respectively represent if prices were the same as when the depreciable assets were acquired or constructed. Thus, the community tends to consume capital, instead of income, and considers itself very prosperous in so doing. This is exactly what occurred in Germany.

Among German writers, Schmidt apparently recognized the fundamental objection to depreciation on replacement cost. He said that it was important to distinguish between the general price level and that applicable to a fixed asset. Hence, depreciation based on replacement cost will not necessarily maintain the capital invested in the depreciable asset; and maintenance of such capital should be the essential aim. He thinks, moreover, that such a method of depreciation will not eventually lead to accumulation of the replacement price.*

d. All expenses should be based on original cost adjusted for the general price change

The same principles apply to expenses other than depreciation. When prices are rising as a result of monetary depreciation, maintenance of real capital requires that the actual expenditures for materials, labor and the other kinds of expense be converted into the price level existing at the date of sale so that the amount that selling price must cover to maintain real capital may be clearly apparent. Practically it may be inadvisable to attempt in most cases to adjust the cost and profit elements in the price of each

* *Organische Bilanz.*

Effects of Inflation on German Accounting

article to correspond with the changed price level. But, nevertheless, some approximate method must be devised if real capital is to be maintained in such a period.

The leading German writers on accounting correctly attacked the old, established accounting methods that used uncorrected book figures and that, therefore, maintained only nominal capital. But they in turn made the error of advocating that the prices of goods should be based on the replacement costs of the various expenses and profits applicable to the sale of such goods. Adoption of such recommendation would maintain merely the material capital.

4. Effects of monetary depreciation upon accounting statements

Largely as a result of the effects just described, the orthodox balance-sheet, profit-and-loss statement and similar accounting summaries become incorrect when inflation continues. Let it be assumed, for example, that the following is the debit side of a fixed-asset account:

FACTORY BUILDING		
Jan.,	1914.....	M100,000
Dec.,	1918.....	4,166
Aug.,	1921.....	200,840
Dec.,	1922.....	2,626,299
Jan.,	1923.....	1,167,200
March,	1923.....	999,400
July,	1923.....	2,620,340
Oct. 5,	1923.....	21,439,177,950
Nov. 30,	1923.....	2,000,989,842,000,000

What do these entries express in their present form? Nothing except dissimilar amounts. There is no advantage in finding the total. It would be meaningless. The easiest way to place the above amounts on a comparable, similar basis is to convert them into gold marks by the depreciation factors given in the previous table. The account then looks as follows so far as its debit side is concerned:

FACTORY BUILDINGS—DR.			
Date	Book marks	Depreciation factor	Gold marks
Jan., 1914...	100,000	1.000	100,000
Dec., 1918...	4,166	2.083	2,000
Aug., 1921...	200,840	20.084	10,000
Dec., 1922...	2,626,299	1,750.866	1,500
Jan., 1923...	1,167,200	11,672.000	100
March, 1923...	999,400	4,997.000	200
July, 1923...	2,620,340	262,034.000	10
Oct. 5, 1923...	21,439,177,950	142,927,853.000	150
Nov. 30, 1923...	2,000,989,842,000,000	1,000,494,971,000.000	2,000

The cost value of this asset may be now ascertained by addition of the gold-mark column. The use of mere book-mark figures for balance-sheets and income statements leads to absolutely absurd results when monetary depreciation is occurring at so fast a rate.

E. Elmer Staub, former partner at the Berlin office of Lybrand, Ross Bros. & Montgomery, stated in a letter to the writer regarding the attitude of American accountants toward the balance-sheet and income-statement figures published by many German corporations during the inflation period, “. . . they meant absolutely nothing and must be completely ignored so far as American accountants were concerned. . . . The result is that American accountants in Berlin have used only figures showing pre-war earnings and earnings starting with 1924 and subsequent thereto.”

5. Effects of monetary depreciation upon net worth

Another consequent effect of inflation conditions during a period of monetary depreciation is that the net worth, regardless of dividends and additional investments, decreases so far as its effective equivalent in terms of other economic goods and services is concerned, unless, of course, the profit expressed in the depreciating money is an actual real profit and not merely an apparent one. Perhaps generally, however (largely as a result of business and accounting methods unadapted to the general price change), most concerns realize only apparent profits in such a period.

One may thus paradoxically say that in such cases net worth decreases as a result of profitable business activity.

6. Effects of monetary depreciation upon dividends

Another effect of the depreciating money is the tendency of businesses to distribute apparent earnings in the form of dividends. Thus, the diminution of real capital is further increased. One aim of the German law relating to business and accounting was to prevent payment of dividends from capital. Inasmuch as the *Handelsgesetzbuch*, in which this law appears, was not revised or modified until the end of 1923, when laws on the subject of gold-mark accounting began to appear, the payment of dividends from only apparent profits was not illegal.

7. Effects of monetary depreciation upon calculation of income taxes

Finally, such inflation tends to cause profits and income taxes to be paid on merely apparent profits, and, therefore, from

capital. What Mahlberg considered very unjust was not merely the fact that apparent profits, which were actually capital losses, were taxed; but especially the fact that many large genuine profits could not be taxed according to law. Such genuine profits were made by concerns with large capital asset holdings and small depreciation thereon on the one side, and with large long-term liabilities on the other.

The injustice of a taxation system that measures income in a depreciating monetary unit and then taxes it is well stated by F. W. Thornton with regard to the United States.*

After a long struggle the German taxation system finally admitted the importance of the principle that monetary depreciation in its relation to tax calculation should be considered, although a complete admissible system of accounting on a stable basis was not explained.

Mahlberg said that if the currency had been appreciating in value, when losses would in many cases have been only apparent ones, the tax authorities would have hastened to recognize the principle that the substantial (and not merely the nominal) values of respective book figures should be considered—a principle formerly contested by them.†

As a result of the effects of the mark depreciation upon accounting, orthodox accounting methods could offer no clear principles for judging the results of business activity. Complete revision was necessary.

*"Investments," *The Journal of Accountancy*, vol. XL (1925), p. 332.

† *Op. cit.*, p. 9.