

# Inflation adjustments of financial statements: Implication to price index and performance

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## Abstract

This paper examines the critical role of inflation accounting in adjusting financial statements to accurately reflect the impact of inflation on the economy. The primary objectives are twofold: examine the process of restating balance sheets and income statements, emphasizing the limitations inherent in historical cost accounting; and investigate the practical usefulness of price indices in identifying complex changes in the value of monetary and non-monetary assets and liabilities. It uses a systematic analysis of the restatement process, delving into the application of the Constant Purchasing Power Accounting (CPPA) method. The study used Royal Dutch Airlines Company for the years 2018-2019 financial data, including varying different inflation levels. The results of the analysis reveal that indexing revenues under the CPPA method improves liquidity, profitability, and solvency ratios. This improvement is particularly evident in the cash flow statement analysis, where corrections are minimized compared to historical cost accounting. The CPPA method appears to be a powerful solution to the limitations imposed by historical costing in inflationary environments. It is worth noting that the research reveals differences in the practical application of inflation calculations between countries, depending on economic and regulatory factors. This paper calls for continued research efforts to delve deeper into the implications of inflation for different industries, economies and financial reporting frameworks.

**Keywords:** *inflation accounting, constant purchasing power, financial statements, price index, historical cost*

## Article History:

*Received:* August 24, 2023

*Accepted:* February 7, 2024

*Revised:* February 2, 2024

*Published online:* February 21, 2024

## Suggested Citation:

Wali, K., Darwish, B.K. & Velasco, R. (2024). Inflation adjustments of financial statements: Implication to price index and performance. *International Journal of Academe and Industry Research*, 5(1), 22-42. <https://doi.org/10.53378/353040>

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## 1. Introduction

Inflation has far-reaching implications for various economic factors, significantly influencing the behavior of individuals and businesses. Ha et al. (2019) underscore a critical concern in inflation accounting—the potential underestimation of depreciation expenses due to inflation. While there are few studies conducted on this nature (Konchitchki, 2011; Schüler & Wünsche, 2023; Goldfajn et al., 2000), other studies reflect the concerns on its potential effect in financial data and information (Vélez-Pareja, 2007; Argiles et al., 2011; Olarewaju et al., 2020; Nagaraju et al., 2017). Addressing this concern becomes imperative when making inflation-related adjustments in financial statements (Ha et al., 2020). In fact, Karapinar et al. (2012) argue significant difference between adjusted cost-based financial ratios and historical cost-based financial ratios. Ball (2024) found that companies report stronger balance sheets at the time of weakened financial positions. These financial performance measures have specific implications to managerial decisions (Webster et al., 1980).

Bulow and Shoven (1982) highlighted challenges arising from high and volatile inflation during the 1960s and 1970s, leading to distortions in financial accounts. Comparing the inflation-adjusted and historical cost amounts, Chamisa et al. (2018) found that gains and losses in hyperinflationary economy provide incremental information beyond the historical cost amounts. This means financial statements reflect historical amounts that are not adjusted under inflationary conditions (Kramarova, 2021; Frank 2019). Hence, the need to address the impact of inflation on financial reporting becomes evident for providing a more accurate representation of a company's financial health and performance.

Several arguments were raised on the varying degrees of difference between inflation-adjusted costs and historical costs in most aspects of financial reports. Smith and Johnson (2018) and Javed (2019) emphasize the importance of accurate adjustments in financial statements using inflation accounting. This is clearly applied in the studies of Ha et al. (2019, 2020, 2021) highlighting inflation in low-income countries, emerging and developing economies, and the specific dynamics during the pandemic, offering a comprehensive understanding of inflation drivers and policies. In the investment and lending decisions Schuetze (1992) proposed the shift from historical cost accounting to mark-to-market for marketable securities. While inflation may impair value relevance under historical cost

accounting, it may simultaneously enhance value relevance by making present earnings more pertinent to investors through higher discount rates (Binz et al., 2023). In the Islamic banking sector, Fathi (2022) found that inflationary adjusted pricing increased bank performance as reflected in the financial statements. However, O'Hanlon and Peasnell (2004) argue that inflation adjustment brings unnecessary complication and errors.

While inflation is common to countries, International Accounting Standard (IAS) 29 titled 'Financial Reporting in Hyperinflationary Economies' applies exclusively to entities whose functional currency is the currency of certain countries, such as Argentina, Ethiopia, Haiti, Iran, Lebanon, South Sudan, Sudan, Suriname, Turkey, Venezuela, and Zimbabwe. IAS 29 outlines underlying principles and requirements but does not provide the process of measuring income and the effects of valuations. Given the principles covered in IAS 29, several authors applied the concepts to numerical terms (Goldschmidt & Yaron, 1991), as needed in the accounting field. Empirical evidence mostly describes the characteristics of hyperinflationary economies (Pittaluga et al., 2021; Reinhart & Savastano, 2003; Coomer & Gstraunthaler, 2011; Lopez & Mitchener, 2021), effects and implications of IAS 29 (Tamimi & Orbán, 2020; Obstfeld & Rogoff, 2021; Marthinsen & Gordon, 2022) and implications of IAS 29 on financial reporting (Chamisa et al., 2018; Ovidiu et al., 2013). There are only few studies on applying IAS principles to company net assets.

This paper delves into the principles contained in IAS 29 and the two methods outlined in Financial Accounting Standard (FAS) 33 for adjusting net assets. As a case subject, this study used the financial statements of Royal Dutch Airlines Company for the years 2018-2019 because the financial statements aligns with the constant purchasing power accounting (CPPA) method to measure the impact of inflation on financial performance in a practical and industry-specific context, which has unique financial dynamics and challenges.

## **2. Literature Review**

### ***2.1. Necessity of Adjustment***

Whittington et al. (1992) find an imperative need for adjustments in the context of inflation accounting. Understanding the necessity for adjustment becomes paramount when considering various inflation accounting systems (Muhamad Ali et al., 2020). For example, the

distinction between net borrowers and net lenders is crucial, particularly concerning monetary assets. If monetary assets exceed liabilities, the firm experiences a net loss on these items due to the declining purchasing power of money. Conversely, if liabilities exceed monetary assets, an unrecorded net gain occurs because the real value of the liabilities is lower than their nominal value. This dynamic highlights the impact of inflation on different financial positions within a company and stresses the need for nuanced adjustments.

Another significant adjustment pertains to the undercharging of depreciation, a traditional approach elucidated by Humphrey (1981). Calculating depreciation based on historical market values of assets can lead to two adverse effects on an enterprise. Firstly, it results in insufficient replacement costs within revenues, as the depreciation charges should ideally cover the costs of acquiring new assets. However, depreciation, calculated based on historical costs without indexing for inflation, fails to keep pace with the increased market prices of new assets. Secondly, such depreciation costs do not reflect inflationary changes in asset values, potentially overstating profits in financial statements (Wali et al., 2019). The adjustment of stock costs is another critical aspect emphasized in the literature. As goods are purchased, their value increases with inflation until they are utilized, leading to appreciation. To ensure an accurate reflection of the effects of price changes and to produce a real measure, the value of opening stock needs to be indexed. Without this adjustment, companies can only deduct stock costs based on historical costs, resulting in higher nominal profits but lower real after-tax earnings due to increased tax burdens.

## ***2.2 Implications of Adjustments***

National accounting standards typically discourage corrections for inflation (Schuetze, 1992). However, IAS 29 mandates the restatement of financial statements for entities in hyperinflationary economies, identified when cumulative inflation over three years' approaches or exceeds 100%. It's important to acknowledge that the applicability of these adjustments is not universal. The relevance of these discussions hinges on the economic context, particularly whether a country is undergoing hyperinflation. This consideration becomes paramount in understanding the broader implications of inflation-related adjustments. Inflation accounting, particularly the utilization of price indices and historical cost adjustments, significantly influences economic parameters, individual behavior, and corporate practices. The undercharging of depreciation (Humphrey, 1981) is one aspect deserving attention in

inflation accounting. Inflation distorts inventory figures and depreciation rates, leading to higher tax rates on real corporate earnings.

IAS 29 and FAS 33 offer regulations and methods for adjusting net assets in the presence of inflation. The constant dollar method and the current cost method, alternative approaches discussed by Von Horne et al. (2005), present ways to adjust for inflation. The use of price indices or market prices aids in adjusting both monetary and non-monetary assets and liabilities, consequently impacting the calculation of total equity. Monetary assets and liabilities are affected differently based on whether a firm is a net borrower or net lender. Holding money during inflation incurs opportunity costs, affecting both nominal money values and interest payments. In addition, the market prices of desired assets rise with inflation, necessitating additional investments while depreciation costs based on historical values fail to reflect inflationary changes in asset values, resulting in overstated profits (Binz et al., 2023).

Another critical correction in inflation accounting pertains to the undercharging of depreciation. Calculated depreciation charges based on historical market values of assets fall short of covering the costs of purchasing new assets due to inflation (Binz et al., 2023; Humphrey, 1981). Similarly, inventory costs also demand consideration. The value of purchased goods increases with inflation until utilization, creating a form of appreciation. Adjusting the value of opening stock using indexing helps mitigate the impact of increased prices on stock. Without this adjustment, companies can only deduct the costs of stock based on historical values, leading to higher nominal profits and lower real after-tax earnings (Wali et al., 2020). These adjustments profoundly impact financial ratios and the assessment of company performance. Hence, clarifying inflation's impact on historical cost accounting and specific financial statement items is crucial.

### **3. Methodology**

This study is rooted in the analysis of restated financial data, utilizing CPPA method with various inflation assumptions. The approach is based on practical analysis, emphasizing ethical considerations in the use of financial statements and adherence to accounting principles and standards.

The financial data for the study is derived from the Royal Dutch Airlines Company's balance sheet, income statement, and cash flow statement for the years 2018-2019. The

analysis explores different inflation levels, applying the CPPA method for restatement. Assumptions are made regarding the indexing of revenues to reflect changes in the purchasing power of the currency. The study computes and compares various financial ratios to assess the impact on performance indicators.

To implement the CPPA method, adjustments are made to the balance sheet and income statement based on the relationship between non-monetary assets (N), monetary assets (M), liabilities (L), and proprietor's net worth (P) as outlined in equation 1:

$$[N_t + M_t = L_t + P_t]$$

The opening balance sheet is corrected using a general price index (p) to derive the restated closing balance sheet, as indicated by equation 2:

$$[P_{t+1} = N_t(1+p) + M_t - L_t]$$

Furthermore, the CPPA profit  $[(Y_{CPPA})]$  is calculated by subtracting the restated opening balance sheet from the restated closing balance sheet. This highlights the impact of inflation on profits, including gains on borrowings and losses on lending and holding money. The methodology is anchored on the relevant literature including the studies of Zamel et al. (2020), Berganza et al. (2018), Bryan (2018), Trivedi (2018), Singh (2016), and Whittington et al. (1992). In addition, Peavler (2019) on the limitations of ratio analysis are considered to ensure a comprehensive approach to the study.

## 4. Results and Discussion

To illustrate the practical application of the CPPA method, the balance sheet and income statement of Royal Dutch Airlines Company, presented in table 1 and 3, are considered. The illustration explores three different levels of inflation, applying the restatement methodology. Assumptions are made regarding the indexing of revenues, and the corresponding ratios are computed and compared to assess the impact on performance indicators as indicated in tables 2, 3, 4, 5, 6 and 7.

**Table 1***Royal Dutch Airlines Company balance sheet*

	<b>2019</b> <i>(in millions)</i>	<b>2018 restated</b> <i>(in millions)</i>
<b>ASSETS</b>		
Non-current assets		
Property, plant and equipment	€4,328	€3,780
Right-of-use assets	€1,561	€1,693
Intangible assets	€486	€407
Investments accounted for using the equity method	€560	€459
Other non-current assets	€231	€239
Other financial assets	€429	€449
Deferred tax assets	€9	
Pension assets	€420	€331
<b>TOTAL NON-CURRENT ASSETS</b>	<b>€8,015</b>	<b>€7,367</b>
Current assets		
Other current assets	€158	€159
Other financial assets	€100	€56
Inventories	€243	€189
Trade and other receivables	€1,686	€1,790
Cash and cash equivalents	€186	€242
<b>TOTAL CURRENT ASSETS</b>	<b>€2,373</b>	<b>€2,436</b>
<b>TOTAL ASSETS</b>	<b>€10,388</b>	<b>€9,803</b>
<b>LIABILITIES</b>		
Non-current liabilities		
Loans from subsidiaries	-	€19
Financial debt	€648	€483
Lease debt	€1,114	€946
Other non-current liabilities	€240	€150
Other financial liabilities	€1,100	€918
Deferred income	€228	€204
Deferred tax liabilities	€92	-
Return obligation liability and other provisions	€1,096	€1,176
<b>TOTAL NON-CURRENT LIABILITIES</b>	<b>€4,256</b>	<b>€4,158</b>
Current liabilities		
Trade and other payables	€2,424	€2,480
Loans from parent company	-	€99
Loans from subsidiaries	€32	€33
Financial debt	€96	€164
Lease debt	€321	€291
Other current liabilities	€113	€197
Other financial liabilities	€73	€7
Deferred income	€1,240	€1,186
Current tax liabilities	€59	-
Return obligation liability and other provisions	€257	€186
<b>TOTAL CURRENT LIABILITIES</b>	<b>€4,671</b>	<b>€4,587</b>
<b>TOTAL LIABILITIES</b>	<b>€8,829</b>	<b>€8,843</b>
<b>EQUITY</b>		
Capital and reserves		
Share capital	€94	€94
Share premium	€474	€474
Reserves	(€315)	(€651)
Retained earnings	€858	€478
Result for the year	€448	€565
<b>TOTAL ATTRIBUTABLE TO COMPANY'S EQUITY HOLDERS</b>	<b>€1,559</b>	<b>€960</b>
<b>TOTAL LIABILITIES AND EQUITY</b>	<b>€10,388</b>	<b>€9,803</b>

The analysis reveals that the absence of indexing revenues leads to worsened liquidity, profitability, and solvency ratios. However, when revenues are indexed, the ratios generally improve with higher inflation. This improvement is particularly evident in the cash flow statement analysis, where the positions of cash and bank balances require fewer extreme corrections compared to historical cost accounting. In such cases, inflation accounting provides additional information to analysts and stakeholders (Wali, 2021).

#### 4.1 Restated balance sheet

**Assumption 1: moderate inflation rate of 4%.** The restated balance sheet reflects the impact of a moderate inflation rate of 4%.

**Table 2**

*Restated Royal Dutch Airlines Company balance sheet using CPPA Method with 4% Inflation*

Assets	Amounts (in millions)	Liabilities & Equity	Amounts (in millions)
<b>Non-current assets</b>		<b>Non-current liabilities</b>	
Property, plant and equipment	€4,328	Loans from subsidiaries	-
Right-of-use assets	€1,561	Financial debt	€648
Intangible assets	€486	Lease debt	€1,114
Investments accounted for using the equity method	€560	Other non-current liabilities	€240
Other non-current assets	€231	Other financial liabilities	€1,100
Other financial assets	€429	Deferred income	€228
Deferred tax assets	€9	Deferred tax liabilities	€92
Pension assets	€420	Return obligation liability and other provisions	€1,096
Total non-current assets	€7,024	Total non-current liabilities	€4,518
Current assets		Current liabilities	
Other current assets	€158	Trade and other payables <sup>1</sup>	€2,424
Other financial assets	€100	Loans from parent company	-
Inventories	€243	Loans from subsidiaries	€32
Trade and other receivables	€1,686	Financial debt	€96
Cash and cash equivalents	€186	Lease debt	€321
Total current assets	€2,373	Other current liabilities	€113
<b>Total assets</b>	<b>€9,397</b>	Other financial liabilities	€73
		Deferred income	€1,240
		Current tax liabilities	€59
		Return obligation liability and other provisions	€257
		Total current liabilities	€4,615
		<b>Total liabilities</b>	<b>€9,133</b>
		<b>Equity</b>	
		Capital and reserves	
		Share capital (Note 45)	€94
		Share premium	€474
		Reserves (Note 45)	(€315)
		Retained earnings	€858
		Result for the year	€448
		Total attributable to company's equity holders	€1,559
		<b>Total liabilities and equity</b>	<b>€10,388</b>

Source: KLM 2018, 2019 Annual Report, processed by authors



Under this assumption, the non-current assets increased to €7,024 million, primarily driven by higher valuations of property, plant and equipment, right-of-use assets, and intangible assets. The current assets also experienced a slight increase to €2,373 million, mainly due to higher inventories and trade receivables as shown in table 2. On the liabilities side, the non-current liabilities reached €4,518 million, primarily influenced by higher financial debt, lease debt, and other financial liabilities. The current liabilities amounted to €4,615 million, mainly driven by increased trade and other payables, deferred income, and return obligation liability. Overall, the company's total assets increased to €9,397 million, and the total liabilities rose to €9,133 million. The company's equity, including retained earnings and result for the year, amounted to €1,559 million. The total liabilities and equity reached €10,388 million.

**Assumption 2: High Inflation (15%).** Under the assumption of high inflation at 15%, as presented in table 3, the restated balance sheet demonstrates a significant impact on the company's financial position.

**Table 3***Restated Royal Dutch Airlines Company balance sheet, 2019 using CPPA Method with 15% Inflation*

Assets	Amounts (in millions)	Liabilities & Equity	Amounts (in millions)
<b>Non-current assets</b>		<b>Non-current liabilities</b>	
Property, plant and equipment	€4,732.6	Loans from subsidiaries	-
Right-of-use assets	€1,793.15	Financial debt	€747.6
Intangible assets	€559.9	Lease debt	€1,280.1
Investments accounted for using the equity method	€644	Other non-current liabilities	€276
Other non-current assets	€266.85	Other financial liabilities	€1,265
Other financial assets	€494.35	Deferred income	€262.2
Deferred tax assets	€9	Deferred tax liabilities	€106.8
Pension assets	€483	Return obligation liability and other provisions	€1,261.4
Total non-current assets	€8,982.85	Total non-current liabilities	€5,399.1
Current assets		Current liabilities	
Other current assets	€170.7	Trade and other payables	€2,791.6
Other financial assets	€115	Loans from parent company	-
Inventories	€279.45	Loans from subsidiaries	€36.8
Trade and other receivables	€1,939.9	Financial debt	€110.4
Cash and cash equivalents	€214.9	Lease debt	€369.15
Total current assets	€2,719.95	Other current liabilities	€132.45
<b>Total assets</b>	<b>€11,702.8</b>	Other financial liabilities	€84.95
		Deferred income	€1,426
		Current tax liabilities	€65.85
		Return obligation liability and other provisions	€290.55
		Total current liabilities	€5,297.3
		<b>Total liabilities</b>	<b>€10,696.4</b>
		<b>Equity</b>	
		Capital and reserves	
		Share capital	€94
		Share premium	€546
		Reserves	(€380.2)
		Retained earnings	€1,025.4
		Result for the year	€530.6
		Total attributable to company's equity holders	€1,816.8
		<b>Total liabilities and equity</b>	<b>€12,513.2</b>

Source: KLM 2018, 2019 Annual Report, processed by authors

The non-current assets rose to €8,982.85 million, primarily driven by substantial increases in property, plant and equipment, right-of-use assets, and intangible assets. The current assets also experienced growth, reaching €2,719.95 million, mainly due to higher trade and other receivables. On the liabilities side, the non-current liabilities increased to €5,399.1 million, primarily influenced by higher lease debt, other financial liabilities, and return obligation liability. The current liabilities amounted to €5,297.3 million, mainly driven by increased trade and other payables, deferred income, and return obligation liability. The total assets of the company rose significantly to €11,702.8 million, while the total liabilities reached €10,696.4 million. The equity, including retained earnings and result for the year, amounted to €1,816.8 million. The total liabilities and equity reached €12,513.2 million.

**Assumption 3: Hyperinflation (100%).** In the situation of hyperinflation at 100%, the restated balance sheet reflects a substantial impact on the company's financial position.

**Table 4**  
*Restated Royal Dutch Airlines Company balance sheet 2019 using CPPA Method with 100% Hyperinflation*

Assets	Amounts (in millions)	Liabilities	Amounts (in millions)
<b>Non-current assets</b>		<b>Non-current liabilities</b>	
Property, plant and equipment	€8,656	Loans from subsidiaries	-
Right-of-use assets	€3,122	Financial debt	€1,296
Intangible assets	€972	Lease debt	€2,226
Investments accounted for using the equity method	€1,120	Other non-current liabilities	€480
Other non-current assets	€462	Other financial liabilities	€2,200
Other financial assets	€858	Deferred income	€456
Deferred tax assets	€9	Deferred tax liabilities	€184
Pension assets	€840	Return obligation liability and other provisions	€2,192
<b>Total non-current assets</b>	<b>€16,039</b>	<b>Total non-current liabilities</b>	<b>€9,034</b>
<b>Current assets</b>		<b>Current liabilities</b>	
Other current assets	€317	Trade and other payables	€4,848
Other financial assets	€200	Loans from parent company	-
Inventories	€486	Loans from subsidiaries	€64
Trade and other receivables	€3,393	Financial debt	€192
Cash and cash equivalents	€372	Lease debt	€642
<b>Total current assets</b>	<b>€4,768</b>	Other current liabilities	€226
<b>Total assets</b>	<b>€20,807</b>	Other financial liabilities	€146
		Deferred income	€2,480
		Current tax liabilities	€118
		Return obligation liability and other provisions	€514
		<b>Total current liabilities</b>	<b>€8,230</b>
		<b>Total liabilities</b>	<b>€17,264</b>
		<b>Equity</b>	
		Capital and reserves	
		Share capital	€94
		Share premium	€658
		Reserves	(€459.4)
		Retained earnings	€1,296.6
		Result for the year	€696
		Total attributable to company's equity holders	€1,585.2
		<b>Total liabilities and equity</b>	<b>€18,849.2</b>

Source: KLM 2018, 2019 Annual Report, processed by authors

The non-current assets increased significantly to €16,039 million, primarily driven by soaring valuations of property, plant and equipment, right-of-use assets, and intangible assets. The current assets also experienced significant growth, reaching €4,768 million, mainly due to higher trade and other receivables. On the liabilities side, the non-current liabilities rose to €9,034 million, influenced by higher financial debt, lease debt, and return obligation liability. The current liabilities amounted to €8,230 million, primarily driven by increased trade and other payables, deferred income, and return obligation liability. The company's total assets skyrocketed to €20,807 million, while the total liabilities reached €17,264 million. The equity, including retained earnings and result for the year, amounted to €1,585.2 million. The total liabilities and equity reached €18,849.2 million.

Overall, the analysis of the restated balance sheets reveals the significant impact of different inflation assumptions on the company's financial position. Higher inflation rates result in substantial increases in both assets and liabilities, highlighting the importance of considering the effects of inflation when evaluating a company's financial statements.

#### ***4.2. Restated income statements***

**Table 5**

*Income Statement Royal Dutch Airlines Company*

Details	Amounts
Revenues	-
Revenues - External	11,075
Revenues - Internal	-
Total revenue	11,075
EBITDA	1,943
Income from current operations	853
Other non-current income and expenses	22
Financial Income and expenses	(275)
Income tax expense	(162)
Share of results of equity shareholdings	11
Profit for the year	449
Amortization, depreciation and movements in provision	(1,090)
Other financial income and expenses	(127)

*Source: KLM 2018, 2019 Annual Report, processed by authors*

The practical application of the CPPA method, the balance sheet, income statement and cash flow statement of Royal Dutch Airlines Company is considered for analysis. The study explores three situations with different levels of inflation and applies the restatement methodology. Assumptions are made regarding the indexing of revenues. The corresponding ratios are computed and compared to assess the impact on performance indicators.

**Table 6**

*Restated Income statement, Royal Dutch Airlines Company*

Details	*Historical data	**Moderate inflation	***High Inflation	****Hyper-inflation
	Assumption	4%	15%	100%
Revenues				
Revenues External	11,075	11,075	12,729.6	22,150
Revenues Internal	-	-	-	-
Total revenue	11,075	11,075	12,729.6	22,150
EBITDA	1,943	1,943	2,226.2	3,886
Income from current operations	853	853	976.2	1,699
Other non-current income and expenses	22	22	25.3	44
Financial Income and expenses	-275	-275	-309.3	-550
Income tax expense	-162	-162	-181.8	-324
Share of results of equity shareholdings	11	11	12	22
<b>Profit for the year</b>	<b>449</b>	<b>449</b>	<b>530.4</b>	<b>913</b>
Amortization, depreciation, and movements in provision	-1,090	-1,090	-1,300.5	-2,180
Other financial income and expenses	-127	-127	-151.1	-254

*Source:* KLM 2018, 2019 Annual Report, processed by authors

**Assumption 1: Moderate Inflation (4%).** An analysis of the restated income statements using the CPP accounting method with different inflation assumptions is shown in table 6. Highlights of the analysis include:

*Revenues:* The restated revenues remain unchanged at \$11,075.

*EBITDA:* The EBITDA is restated to \$1,943.

*Income from current operations:* The income from current operations is restated to \$853.

*Profit for the year:* The profit for the year is restated to \$449.

*Assumption 2: High Inflation (15%).* Highlights of the analysis include:

*Revenues:* The restated revenues increase to \$12,729.6, reflecting the higher inflation rate.

*EBITDA:* The EBITDA increases to \$2,226.2.

*Income from current operations:* The income from current operations increases to \$976.2.

*Profit for the year:* The profit for the year increases to \$530.4.

*Assumption 3: Hyperinflation (100%).* Highlights of the analysis include:

*Revenues:* The restated revenues significantly increase to \$22,150 due to the high inflation assumption.

*EBITDA:* The EBITDA increases to \$3,886.

*Income from current operations:* The income from current operations increases to \$1,699.

*Profit for the year:* The profit for the year increases significantly to \$913.

In summary, as the inflation assumptions increase from moderate to high and hyperinflation, the restated income statement shows higher revenues, EBITDA, income from current operations, and profit for the year. This reflects the impact of inflation on the financial performance of the company.

#### ***4.3. Financial ratios in relation to inflation, price index, and historical costs***

The analysis of the financial ratios in relation to inflation, price index, and historical costs is displayed in table 7. The results of analysis highlight the following:

*Return on Investment (ROI).* ROI measures the profitability of the company's investment in assets. Inflation can impact ROI by affecting the purchasing power of the company's earnings and the value of its assets. With the CPPA method, the restated financial statements reflect the impact of inflation on historical costs. The ROI calculated in each inflation assumption considers the restated profit for the year and total assets. Higher inflation rates can lead to lower ROI as the purchasing power of earnings is eroded.

**Table 7***Financial ratio analysis for Royal Dutch Airlines Company*

Financial Ratios	Historical data	Modest Inflation 4 %	High Inflation 15%	Hyperinflation 100%
	31-12-2019	31-12-2019	31-12-2019	31-12-2019
Current Ratio	0.512	0.509	0.514	0.580
Quick ratio	0.451	0.451	0.415	0.415
Solvency ratio	0.151	0.151	0.151	0.151
Return on Equity (ROE)	0.287	0.287	0.382	0.335
Return on investment (ROI)	0.043	0.043	0.043	0.043
Debt-to-Total Assets Ratio	0.852	0.852	0.852	0.852
Debt-to-Equity Ratio	5.656	5.656	5.891	10.891
Inventory Turnover	45.576	45.576	45.576	45.576
Assets Turnover	1.065	1.065	1.065	1.065

*Source:* KLM 2018, 2019 Annual Report, processed by authors

*Return on Equity (ROE).* With an ROE of 38.28%, the company shows a higher profitability level compared to the moderate inflation scenario. It suggests that the company has been successful in generating significant returns for its equity holders, despite the challenges posed by high inflation.

*Inventory Turnover.* Inventory turnover measures how efficiently the company manages its inventory. Inflation can impact inventory turnover by affecting the cost of goods sold and the value of inventory. With the CPPA method, the historical cost of inventory is restated to reflect the impact of inflation. Higher inflation rates can lead to higher inventory turnover as the company sells inventory at higher prices. However, it's important to consider the impact of inflation on the cost of goods sold as well.

*Total Asset Turnover.* Total asset turnover measures how effectively the company utilizes its total assets to generate revenue. Inflation can impact total asset turnover by affecting revenue and the value of assets. The restated revenue and total assets in the CPPA method reflect the impact of inflation on historical costs. Higher inflation rates can lead to higher total asset turnover as the company generates more revenue relative to the value of its assets.

*Debt-to-Total Assets Ratio.* The debt-to-total assets ratio indicates the proportion of a company's total assets financed by debt. Inflation can impact this ratio by affecting the value of assets and the real cost of debt. With the CPPA method, the restated total assets reflect the impact of inflation on historical costs. Higher inflation rates can result in a lower debt-to-total

assets ratio as the value of assets increases. However, it's important to consider the impact of inflation on the real cost of debt, as higher inflation can lead to higher interest expenses.

*Debt-to-Equity Ratio.* The debt-to-equity ratio shows the proportion of a company's financing provided by debt relative to equity. Inflation can impact this ratio similarly to the debt-to-total assets ratio. The restated total liabilities and total equity in the CPPA method reflect the impact of inflation on historical costs. Higher inflation rates can lead to a higher debt-to-equity ratio as the value of liabilities increases relative to equity.

*Solvency Ratio.* The solvency ratio measures the company's ability to meet its long-term obligations. Inflation can impact the solvency ratio by affecting the value of assets and liabilities. The restated total assets and total liabilities in the CPPA method reflect the impact of inflation on historical costs. Higher inflation rates can lead to a higher solvency ratio as the value of assets increases relative to liabilities.

In summary, the financial ratios analyzed with respect to inflation and compared to price index and historical costs provide insights into the company's profitability, asset utilization, debt levels, and solvency under different inflation assumptions. The restated financial statements with the CPPA method account for the impact of inflation on historical costs, allowing for a more accurate assessment of the company's financial performance and position. CPPA aims to maintain financial capital maintenance and is supported by FAS 33.

Investors might encounter challenges when refraining from restating data. In such instances, it's worth revisiting the suggestions of IAS 29, as even moderate inflation can wield influence, triggering dramatic shifts in financial statements. Diverse factors, including the structure of the balance sheet, assumptions under the CPPA method, company size, and other considerations, could contribute to this dynamically. While the CPPA method possesses inherent limitations, these can be surmounted through a continuous reevaluation aligned with the inflation index in the financial statement throughout the year. For a more comprehensive understanding of the prerequisites, delving into additional empirical research becomes imperative when implementing inflation accounting in accordance with the IAS 29 guidelines.

## **5. Conclusion**

Inflation accounting plays a crucial role in adjusting financial statements to reflect the impact of inflation on the economy. It involves restating balance sheets and income statements using price indices or market prices to account for changes in the value of monetary and non-

monetary assets and liabilities. By adjusting for inflation, inflation accounting provides a more accurate representation of a company's financial position, performance, and cash flows. The use of inflation accounting techniques, such as CPPA method, helps address the shortcomings of historical cost accounting in inflationary environments. It allows for the recognition of the erosion of the purchasing power of money and the appreciation of non-monetary assets. By restating financial statements, inflation accounting provides a clearer picture of a company's profitability, liquidity, and solvency, enabling better decision-making by investors, creditors, and other stakeholders. However, it is important to note that inflation accounting is not universally applied. National accounting standards may vary, and the requirement for restating financial statements in the presence of inflation depends on the economic and regulatory environment of each country. Companies operating in hyperinflationary economies may be required to apply specific inflation accounting standards, while others may have the option to choose between historical cost accounting and inflation accounting methods.

Inflation accounting continues to be a topic of interest and debate among accounting professionals, academics, and policymakers. As economies evolve and face changing inflationary environments, the relevance and applicability of inflation accounting methods will continue to be discussed and refined. By understanding and implementing appropriate inflation accounting techniques, stakeholders can gain a more accurate understanding of the financial performance and position of companies operating in inflationary economies. Hence, further research and analysis are needed to explore the implications of inflation accounting on different industries, economies, and financial reporting frameworks. The impact of inflation on financial ratios, the comparability of financial statements across countries with different inflation rates, and the challenges of implementing inflation accounting in practice are areas that require deeper investigation.

## **Acknowledgement**

The authors express deepest gratitude to Prof. Dr. Sobhi Saleh and Prof. Dr. Al-Fadil for their valuation contribution to this study.



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