

國際脈動 International Pulse

從投資者視角看企業避險， 以ADM財務報告為例

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本文以ADM（Archer Daniels Midland Company）的年度財務報告10-K為工具，從投資者視角，呈現如何查閱企業避險活動之相關訊息，並試圖闡述衍生品之於企業經營的效用，以期給予讀者對理解企業避險一定程度的啟發。

投資者瞭解企業避險活動資訊之來源

一、企業避險活動資訊之揭露以財務報告為主

實體企業透過衍生品開展避險活動的相關業務資訊通常比較隱秘或難以獲得。這源於衍生品業務本身屬於表外業務。自2008年金融危機後，國際會計準則理事會（IASB）和美國會計準則理事會（FASB）就衍生品業務表外項目對金融工具準則做了大量的修訂和更新，尤其是避險會計。當前，國際會計準則以IFRS-9金融工具為準。美國通用會計準則（US GAAP）則是以ASC-815衍生金融工具與避險會計為準。對於投資者來說，瞭解企業的避險活動資訊可以藉由其財務報告之避險會計相關揭露來進行。

當然，除了企業的財務報告外，還可以從其他的管道瞭解企業的避險活動。比如有少部分企業會公告衍生品業務相關制度，如台積電公布的《從事衍生性商品交易處理程序》。目前除了大陸地區監管層要求上市公司進行衍生品業務及相關制度、公告揭露外，其他地區主要還是以財務報告資訊揭露為主。除財務報告、公告和制度外，瞭解企業的避險活動，相關的新聞報導資訊也是必要的。特別是瞭解企業過往是否於衍生品業務方面出現重大風險或虧損事件，對投資者進行投資決策是非常重要的。

從衍生品的整個發展看，美國的業務和會計準則體系最為成熟。若瞭解企業避險活動資訊，最主要的就是參考上市公司提交給美國證監會（SEC）的年度財務報告10-K檔。特別是其中的“Item-7A, Quantitative and Qualitative Disclosures About Market Risk”，關於市

場風險的定量和定性揭露，企業的避險活動與之密切相關。當然，還有Item-8財務報表與附註、Item-1A風險因素以及其他與衍生品相關的資訊。

Table of Contents		
Item No.	Description	Page No.
Part I		
1.	<u>Business</u>	4
1A.	<u>Risk Factors</u>	16
1B.	<u>Unresolved Staff Comments</u>	23
2.	<u>Properties</u>	23
3.	<u>Legal Proceedings</u>	25
4.	<u>Mine Safety Disclosures</u>	25
Part II		
5.	<u>Market for Registrant's Common Equity, Related Stockholder Matters, and Issuer Purchases of Equity Securities</u>	26
6.	<u>[Reserved]</u>	27
7.	<u>Management's Discussion and Analysis of Financial Condition and Results of Operations</u>	28
7A.	<u>Quantitative and Qualitative Disclosures About Market Risk</u>	42
8.	<u>Financial Statements and Supplementary Data</u>	44
9.	<u>Changes in and Disagreements With Accountants on Accounting and Financial Disclosure</u>	105
9A.	<u>Controls and Procedures</u>	105
9B.	<u>Other Information</u>	105
9C.	<u>Disclosure Regarding Foreign Jurisdictions that Prevent Inspections</u>	105
Part III		
10.	<u>Directors, Executive Officers and Corporate Governance</u>	106
11.	<u>Executive Compensation</u>	108
12.	<u>Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters</u>	108
13.	<u>Certain Relationships and Related Transactions, and Director Independence</u>	108
14.	<u>Principal Accounting Fees and Services</u>	108
Part IV		
15.	<u>Exhibits and Financial Statement Schedules</u>	109
16.	<u>Form 10-K Summary</u>	113
	<u>Signatures</u>	114

圖1、ADM 2023年提交給SEC年度報告10-K文件目錄

二、企業避險活動資訊之揭露要滿足3個核心要求

企業避險活動之資訊要呈現在財務報告中，實際上就是避險會計之資訊揭露。根據ASC-815，避險會計之資訊揭露，企業應滿足3個核心要求：一是明確企業應用衍生工具的目的，有沒有被指定為避險工具，風險管理策略及風險管理目標是什麼，如何管理風險部位；二是明確企業避險活動如何影響其未來現金流量之金額、時點及不確定性，進行定量說明；三是明確企業避險活動對企業資產負債表、綜合損益表及權益變動表之影響，特別是會計政策的設定以及定量說明。

投資者在瞭解企業避險會計之資訊揭露時，便可對照上述3個核心要求來進行評估、判斷。源於企業避險活動的隱秘性以及避險會計理論上對於當期損益的影響為零，所以實際上單純從財務報表的數字上看並不能得到什麼結論。所以，只要企業能夠清晰闡述其避險業務的目的、定性以及定量的給出數據說明避險活動對財務報表造成的影響，這就會給予投資者信心。以下筆者以ADM為示例，從其10-K文件中來進行闡述。

投資者視角，從ADM的10-K報告看其避險活動

ADM (Archer Daniels Midland Company)，是全球最大的農業生產、加工及製造公司，以生產油籽、玉米及小麥加工聞名於世界。生產逾270種農作物加工產品，應用於全球的食品、飲料、營養保健、工業及畜牧飼料市場。與邦吉 (Bunge)、嘉吉 (Cargill)、路易達孚 (Louis Dreyfus) 並稱為「國際四大糧商」。

一、ADM之業務組成及其避險需求

根據ADM於2023年提交給SEC的10-K檔，該企業的業務板塊包括四大類，分別是農業服務和油籽業務、碳水化合物解決方案業務、營養業務以及金融與投資業務。

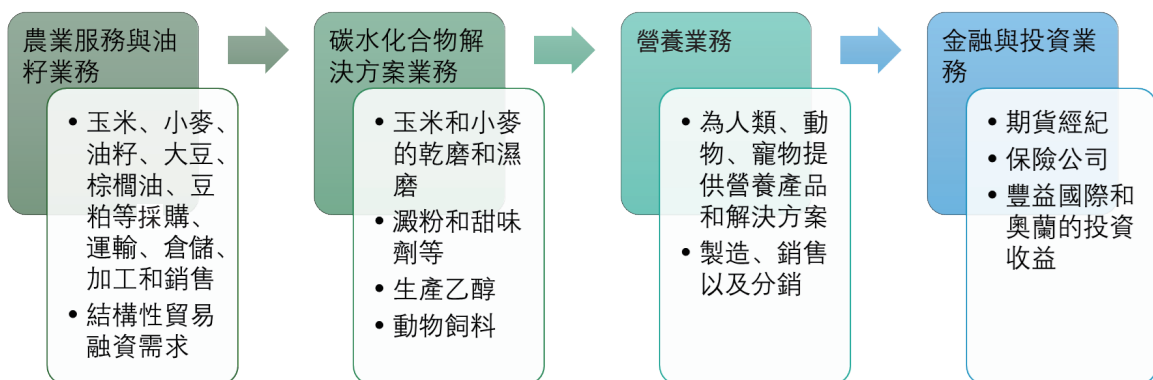


圖2、ADM的業務板塊

1. 農業服務和油籽業務

包括農業原材料的採購、運輸、儲存、加工和銷售。收入來源於農產品的購銷、貨物運輸服務費、全球生產加工製造產品的銷售以及結構性融資貿易活動。

公司進行農產品和飼料產品的進口、出口、全球分銷活動，面臨農產品價格波動風險、匯率風險以及利率風險。可能也會面臨能源價格波動風險，該公司的加工廠主要由電力、天然氣和煤炭提供動力。

公司擁有高效的穀物採購、裝卸和運輸網絡（包括駁船、遠洋船舶、卡車、鐵路和貨櫃貨運服務），為公司的客戶和農產品加工業務提供可靠和高效的服務。可能會面臨能源價格的波動風險以及運費成本的波動。

公司還從事各種結構性貿易融資活動，以利用其全球貿易流量，獲得信用狀 (LC) 來保證全球糧食採購和銷售的付款。擔保糧食銷售付款的信用狀以無追索權的方式進行出售。公司從保證基礎糧食採購和銷售付款的信用狀之間的利率差異中賺取回報。可能會面臨支付信用狀的利率風險。

2. 碳水化合物解決方案業務

包括玉米和小麥的生產及精煉，主要將玉米和小麥轉化為食品和飲料行業使用的產品和成分，包括甜味劑、玉米和小麥澱粉、糖漿、葡萄糖、小麥粉和右旋糖。透過葡萄糖發酵，生產酒精和其他食品以及動物飼料。收入來源於銷售玉米和小麥加工工廠生產的產品，以及乙醇的銷售。

生產的產品從公司的各個設施和儲存終端網路運送給客戶。可能會面臨能源價格的波動風險以及運費成本的波動。

3. 營養業務

營養業務服務於各種終端市場，為人和動物提供各種營養及解決方案。收入來源於各種人和動物營養品的銷售。包括與食用豆的採購、加工和分銷相關的活動。還包括與配方飼料、動物健康和營養產品的加工與分銷相關活動。可能會面臨能源價格的波動風險以及運費成本的波動。

4. 金融與投資業務

包括期貨業務和保險業務。公司旗下全資子公司ADM Investor Services是全美前十五大期貨經紀商，是多家衍生品交易所的清算會員。公司旗下還有農業保險公司，為客戶以及自身業務風險進行管理。此外，ADM還入股投資亞太農業集團豐益國際和奧蘭。可能面臨境外淨投資風險。

綜上，ADM不同的業務板塊，都可能面臨市場風險（價格波動風險、外匯風險、利率風險）。該公司透過使用衍生工具來對沖市場風險，以對沖其對經營業務造成的不利影響，並保護和最大化加工利潤。

二、ADM之衍生工具與避險活動

根據10-K檔中的Note 5，ADM的衍生工具活動被分為2個部分，「未被指定為避險工具的衍生品」和「指定為避險工具的衍生品」。而ADM大部分的衍生工具並沒有被指定為避險工具。

對於未被指定為避險工具的衍生品，ADM經由「期現一體化」來進行部位管理。ADM透過使用期貨合約、場內場外選擇權來管理農產品庫存以及現貨遠期購銷合約的淨部位，來減少因農產品價格波動和匯率波動帶來的風險。此外，還透過期貨合約、場內場外選擇權來進行策略銷售從而增強利潤。該策略受到期貨價格與買賣現貨標的價格之間的差異（基差）、對手方違約以及運費市場的變動影響。ADM的衍生品部位包括期貨、場內選擇權、現貨遠期購銷合約以及已確定要銷售的農產品庫存，以公允價值或市場價值對其進行衡量。值得注意的是，ADM明確定義存貨不屬於衍生品，其公允價值的變動也不屬於該衍生品的範圍。

Note 5. Derivative Instruments & Hedging Activities

Derivatives Not Designated as Hedging Instruments

The majority of the Company's derivative instruments have not been designated as hedging instruments. The Company uses exchange-traded futures and exchange-traded and OTC options contracts to manage its net position of merchandisable agricultural product inventories and forward cash purchase and sales contracts to reduce price risk caused by market fluctuations in agricultural commodities and foreign currencies. The Company also uses exchange-traded futures and exchange-traded and OTC options contracts as components of merchandising strategies designed to enhance margins. The results of these strategies can be significantly impacted by factors such as the correlation between the value of exchange-traded commodities futures contracts and the value of the underlying commodities, counterparty contract defaults, and volatility of freight markets. Derivatives, including exchange traded contracts and forward commodity purchase or sale contracts, and inventories of certain merchandisable agricultural products, which include amounts acquired under deferred pricing contracts, are stated at fair value or market value. Inventory is not a derivative and therefore fair values of and changes in fair values of inventories are not included in the tables below.

圖3、ADM（未被指定）衍生工具之資訊揭露

被指定為避險工具的衍生品，ADM全部經由現金流量避險進行會計核算。ADM對於每一個避險項目，衍生工具都被指定為現金流量避險。被指定的衍生工具都與被避險項目高度相關。一旦被避險項目影響損益，避險工具的利得或損失就會從AOCI（累計其他綜合損益，Accumulated Other Comprehensive Income）重分類至損益，要麼是銷售收入，要麼是銷售成本。

1. 對於商品價格波動風險之避險活動

Commodity Contracts

For each of the hedge programs described below, the derivatives are designated as cash flow hedges. The changes in the market value of such derivative contracts have historically been, and are expected to continue to be, highly effective at offsetting changes in price movements of the hedged item. Once the hedged item is recognized in earnings, the gains and losses arising from the hedge are reclassified from AOCI to either revenues or cost of products sold, as applicable.

The Company uses futures or options contracts to hedge the purchase price of anticipated volumes of corn to be purchased and processed in a future month. The objective of this hedging program is to reduce the variability of cash flows associated with the Company's forecasted purchases of corn. The Company's corn processing plants normally grind approximately 65 million bushels per month. During the past 12 months, the Company hedged between 17% and 33% of its monthly grind. At December 31, 2022, the Company had designated hedges representing between 14% to 28% of its anticipated monthly grind of corn for the next 12 months.

The Company, from time to time, also uses futures, options, and swaps to hedge the sales price of certain ethanol sales contracts. The Company has established hedging programs for ethanol sales contracts that are indexed to unleaded gasoline prices and to various exchange-traded ethanol contracts. The objective of these hedging programs is to reduce the variability of cash flows associated with the Company's sales of ethanol. During the past 12 months and as of December 31, 2022, the Company had no hedges related to ethanol sales.

The Company uses futures and options contracts to hedge the purchase price of anticipated volumes of soybeans to be purchased and processed in a future month for certain of its U.S. soybean crush facilities, subject to certain program limits. The Company also uses futures or options contracts to hedge the sales prices of anticipated soybean meal and soybean oil sales proportionate to the soybean crushing process at these facilities, subject to certain program limits. During the past 12 months, the Company hedged between 85% and 100% of the anticipated monthly soybean crush for soybean purchases and soybean meal and oil sales at the designated facilities. At December 31, 2022, the Company had designated hedges representing between 0% and 100% of the anticipated monthly soybean crush for soybean purchases and soybean meal and oil sales at the designated facilities over the next 12 months.

The Company uses futures and OTC swaps to hedge the purchase price of anticipated volumes of natural gas consumption in a future month for certain of its facilities in North America and Europe, subject to certain program limits. During the past 12 months, the Company hedged between 73% and 93% of the anticipated monthly natural gas consumption at the designated facilities. At December 31, 2022, the Company had designated hedges representing between 53% and 83% of the anticipated monthly natural gas consumption over the next 12 months.

圖4、ADM（被指定）衍生工具之商品資訊揭露

ADM透過期貨或選擇權對沖未來一個月玉米的採購、加工量。該避險項目的目標是降低未來採購玉米的現金流量變動。ADM每月的玉米加工量為6,500萬蒲式耳。在過去的1年裏（2022年），ADM每月的對沖量為17%-33%。

ADM也是不時地透過期貨、選擇權和互換來對沖一些乙醇銷售合約的銷售價格。這些乙醇銷售合約價格與無鉛汽油或某些交易所合約掛鉤。在過去的1年裏（2022年），沒有進行與乙醇銷售合約相關的避險交易。

ADM透過使用期貨和選擇權合約來對沖未來一個月大豆的採購、加工量為一些美國大豆壓榨廠。ADM還使用期貨和選擇權合約來對沖經固定比例大豆壓榨出來的豆油和豆粕的銷售價格。在過去的1年裏，ADM要每月對沖85%-100%的大豆壓榨量對應的大豆採購價格和豆油、豆粕的銷售價格。

ADM透過使用期貨和互換合約來對沖未來一個月天然氣消費量的採購價格為一些在歐洲和美國的工廠。在過去的1年裏，ADM每月要對沖73%-93%的天然氣消費量。

2. 對於匯率波動風險之避險活動

<p><i>Foreign Currency Contracts</i></p> <p>The Company uses cross-currency swaps and foreign exchange forwards designated as net investment hedges to protect the Company's investment in a foreign subsidiary against changes in foreign currency exchange rates. The Company executed USD-fixed to Euro-fixed cross-currency swaps with an aggregate notional amount of \$0.8 billion and \$1.2 billion as of December 31, 2022 and 2021, respectively, and foreign exchange forwards with an aggregate notional amount of \$2.5 billion and \$2.6 billion as of December 31, 2022 and 2021, respectively. Amounts excluded from the assessment of hedge effectiveness are immaterial for all periods presented.</p> <p>As of December 31, 2022 and 2021, the Company had after-tax gains of \$79 million and after-tax losses of \$44 million in AOCI, respectively, related to foreign exchange gains and losses from net investment hedge transactions. The amount is deferred in AOCI until the underlying investment is divested.</p>
<p><i>Other Net Investment Hedging Strategies</i></p> <p>The Company has designated €1.3 billion and €1.8 billion of its outstanding long-term debt and commercial paper borrowings at December 31, 2022 and 2021, respectively, as hedges of its net investment in a foreign subsidiary. As of December 31, 2022 and 2021, the Company had after-tax gains of \$228 million and \$55 million in AOCI, respectively, related to foreign exchange gains and losses from the net investment hedge transactions. The amount is deferred in AOCI until the underlying investment is divested.</p>

圖5、ADM（被指定）衍生工具之外匯資訊揭露

ADM透過使用交叉貨幣互換和遠期外匯來對沖海外子公司投資的匯率波動。簽署的交叉貨幣互換為固定匯率的美元和歐元，2022年和2021年的名義金額分別為8億美元和12億美元。遠期外匯，2022年和2021年的名義金額分別為25億美元和26億美元。與外幣交易的衍生工具的利得和損失都被遞延至AOCI中。此外，ADM指定13億歐元和18億歐元的長期債務和商業票據借款，作為境外子公司的投資避險工具。

3. 對於利率波動風險之避險活動

<p><i>Interest Rate Contracts</i></p> <p>The Company's structured trade finance programs use interest rate swaps designated as cash flow hedges to hedge the forecasted interest payments on certain letters of credit from banks. The terms of the interest rate swaps match the terms of the forecasted interest payments. The deferred gains and losses are recognized in revenues over the period in which the related interest payments are paid to the banks. The amounts are recorded in revenues as the related results are also recorded in revenues. The Company had interest rate swaps maturing on various dates with aggregate notional amount of \$1.0 billion as of December 31, 2021 and none as of December 31, 2022.</p> <p>The Company also uses swap locks designated as cash flow hedges to hedge the changes in the forecasted interest payments due to changes in the benchmark rate leading up to future bond issuance dates. The terms of the swap locks match the terms of the forecasted interest payments. The deferred gains and losses will be recognized in interest expense over the period in which the related interest payments will be paid. As of December 31, 2022 and 2021, the Company executed swap locks maturing on various dates with an aggregate notional amount of \$400 million.</p> <p>As of December 31, 2022 and 2021, the Company had after-tax gains of \$82 million and \$35 million in AOCI, respectively, related to the interest rate swaps and swap locks. The Company expects to recognize amounts deferred in AOCI in its consolidated statement of earnings during the life of the instruments.</p>
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圖6、ADM（被指定）衍生工具之利率資訊揭露

ADM的結構性貿易融資項目，透過指定利率互換為現金流量避險，來對沖銀行信用狀的利息支付。該利率互換的期限條款與信用狀利息支付條款相匹配。隨著信用狀的利息支付以及相關的收入確認，利率互換的利得或損失也從AOCI中對應轉出，計入收入中。

ADM經由鎖住利差（swap lock），指定為現金流量避險來對沖債券的基準利率變化。該swap lock與利率支付的條款相匹配。隨著利息費用的支付，swap lock的利得或損失也從AOCI中對應轉出，計入利息費用中。

綜上，ADM的避險活動是嵌入在經營活動中，且是規模化的開展避險活動，已經成為經營的部分。透過企業避險經營，針對價格波動風險對應之經營活動、外匯、利率風險對應之投融資活動，透過衍生品來規劃、設計企業的經營效用。

投資者視角，從ADM的10-K報告看其避險效用

一、ADM避險活動之風險管控

ADM對其避險活動有著全面的風險管控。ADM管理層在董事會的監督下指導全公司範圍的企業風險管理（ERM）計畫。公司審計委員會承擔風險管理監督職責，並每季收到風險管理流程和關鍵風險因素VaR的最新資訊。ERM旨在透過基於管理層定義的風險限額的避險活動來保護和提高股東價值並促進社會責任。

公司設有首席風險官，負責監督ERM計畫，並定期向董事會報告公司面臨的各種風險以及公司減輕這些風險的策略。公司定期透過ERM流程向董事會報告其整體商品風險敞口。通過監控部位限額和交易對手風險，並採取其他策略和控制措施來管理這些風險。公司擁有既定的商品銷售治理流程，確保適當的部位報告和監控、限制批准，並執行貿易合規、商品監管報告控制和其他財務風險。儘管公司的風險管理策略有時可能無效，因而要確保做好實時監測評估與調整。

二、ADM避險活動之財務基礎

1. ADM對於衍生品的會計政策

企業在合併的資產負債表上將其所有的衍生工具都會確認為資產或負債。未實現的利得確認為其他流動資產，未實現的損失確認為其他應付款或應計費用。衍生工具公允價值變動損益的計量取決於其是否被指定為某一避險關係。ADM大部分的衍生工具並未被指定為避險工具，因此，其衍生工具的公允價值變動將會直接認列損益。對於那些被指定為避險工具的衍生工具，其會計處理也將依據與被避險項目的敞口，分類為現金流量避險或淨投資避險。

對於衍生工具被指定為一項高度有效的現金流量避險，衍生工具的利得或損失被計入累計其他綜合收益AOCI並被分類至現金流量表中的經營活動。當被避險項目影響損益，遞延在AOCI的避險工具損益將跟隨被避險項目於相同會計期間中重分類至損益。該遞延部分不包括避險無效部分以及避險關係終止產生的利得或損失，這些將直接計入當期損益中。衍生工具被指定為避險工具用於外匯避險，分類為淨投資避險，與現金流量避險處理類似。ADM對於衍生品的會計政策規定是相當明確。

Note 1. Summary of Significant Accounting Policies (Continued)

Derivatives

The Company recognizes all of its derivative instruments as either assets or liabilities at fair value in its consolidated balance sheet. Unrealized gains are reported as other current assets and unrealized losses are reported as accrued expenses and other payables. The accounting for changes in the fair value (i.e., gains or losses) of a derivative instrument depends on whether it has been designated and qualifies as part of a hedging relationship and on the type of hedging relationship. The majority of the Company's derivatives have not been designated as hedging instruments, and as such, changes in fair value of these derivatives are recognized in earnings immediately. For those derivative instruments that are designated and qualify as hedging instruments, the Company designates the hedging instrument, based upon the exposure being hedged, as a cash flow hedge or a net investment hedge.

For derivative instruments that are designated and qualify as highly-effective cash flow hedges (i.e., hedging the exposure to variability in expected future cash flows that is attributable to a particular risk), the gain or loss on the derivative instrument is reported as a component of accumulated other comprehensive income (loss) (AOCI) and as an operating activity in the statement of cash flows and reclassified into earnings in the same line item affected by the hedged transaction and in the same period or periods during which the hedged transaction affects earnings. Hedge components excluded from the assessment of effectiveness and gains and losses related to discontinued hedges are recognized in the consolidated statement of earnings during the current period.

For derivative instruments that are designated and qualify as net investment hedges, foreign exchange gains and losses related to changes in foreign currency exchange rates are deferred in AOCI until the underlying investment is divested.

圖7、ADM應用衍生工具之會計政策揭露

2. ADM對於衍生品的估值

在交易所交易的期貨和選擇權合約有著活躍的報價市場，參考交易所的價格即可。對於商品遠期的採購和銷售合約，其公允價值是基於交易所報價和不同地域的基差調整（現貨價格＝期貨價格＋升貼水（基差））。交易所報價代表標準化合約的價格，基差調整通常由競爭者、報價機構或市場交易來確定，是可以被觀察到的。基差調整受到每個工廠和整個市場的當地特定供需影響。替代產品、天氣、燃料成本、合約條款和期貨價格等因素也會影響基差的調整。在某些情況下，基差調整可能是無法觀察到的，因為它們幾乎沒有市場活動的支持。

ADM對於商品衍生品的估值描述非常清晰，針對不同類型的合約，不會讓投資者產生歧異。

外幣相關衍生工具的公允價值變動在合併損益表中確認為收入、銷售產品成本和其他（收入）費用淨額的一部分，如何確認取決於合約目的。被指定為有效現金流量避險的衍生工具公允價值變動在合併資產負債表中確認為AOCI的組成部分，直至被避險項目計入損益或該避險交易很可能不再發生。ADM對於外匯的會計處理政策也是非常清晰，對於匯兌損益所產生的影響也清晰表述採用何種方法來影響損益。

Note 4. Fair Value Measurements (Continued)

Derivative contracts include exchange-traded commodity futures and options contracts, forward commodity purchase and sale contracts, and OTC instruments related primarily to agricultural commodities, energy, interest rates, and foreign currencies. Exchange-traded futures and options contracts are valued based on unadjusted quoted prices in active markets and are classified in Level 1. The majority of the Company's exchange-traded futures and options contracts are cash-settled on a daily basis and, therefore, are not included in these tables. Fair value for forward commodity purchase and sale contracts is estimated based on exchange-quoted prices adjusted for differences in local markets. Market valuations for the Company's forward commodity purchase and sale contracts are adjusted for location (basis) because the exchange-quoted prices represent contracts that have standardized terms for commodity, quantity, future delivery period, delivery location, and commodity quality or grade. The basis adjustments are generally determined using inputs from competitor and broker quotations or market transactions and are considered observable. Basis adjustments are impacted by specific local supply and demand characteristics at each facility and the overall market. Factors such as substitute products, weather, fuel costs, contract terms, and futures prices also impact the movement of these basis adjustments. In some cases, the basis adjustments are unobservable because they are supported by little to no market activity. When observable inputs are available for substantially the full term of the contract, it is classified in Level 2. When unobservable inputs have a significant impact (more than 10%) on the measurement of fair value, the contract is classified in Level 3. Except for certain derivatives designated as cash flow hedges, changes in the fair value of commodity-related derivatives are recognized in the consolidated statements of earnings as a component of cost of products sold. Changes in the fair value of foreign currency-related derivatives are recognized in the consolidated statements of earnings as a component of revenues, cost of products sold, and other (income) expense - net, depending upon the purpose of the contract. The changes in the fair value of derivatives designated as effective cash flow hedges are recognized in the consolidated balance sheets as a component of AOCI until the hedged items are recorded in earnings or it is probable the hedged transaction will no longer occur.

圖8、ADM應用衍生工具之公允價值計量

三、ADM避險活動之財務效用

ADM避險活動對於財務的定量及定性影響，主要基於“Item-7A, Quantitative and Qualitative Disclosures About Market Risk”之資訊揭露。

1. 價格波動風險之營運分析

對於使用和生產的農產品，ADM透過衍生品合約以及非衍生品合約來整體管理其商品部位以減輕價格波動所造成的不利影響。商品部位包括已持有的農產品庫存、相關的購銷合約、能源與運費合約、期貨合約、場內場外選擇權合約（包括用於對沖預期交易的合約）。

ADM的商品策略有2類，一是通過交易期貨合約以及場內場外期權來提升邊際收益。二是不時的針對未來一個月的購買、加工或出售的農產品，指定期貨合約來進行避險。期貨合約價格與被避險項目價值變化高度相關，也就是避險關係評估將會高度有效。該避險被視為現金流量避險來進行會計處理，即將未平倉和平倉期貨合約的利得或損失遞延至其他綜合收益中，直到被避險項目被確認，再將綜合收益確認至銷售收入或銷售成本之部分。

公司對商品部位按公允價值計量，通過設定交易限額和VaR對其敞口進行管理。比如設定VaR的信賴區間為95%，發生時間超過一年來衡量潛在損失。對交易限額進行每天監控，每週對VaR進行計算和敏感度分析。ADM通過「期現部位一體化」來檢測市場風險，通常會設定10%的市場波動來進行交易限制。這樣就保證了避險活動最大也不會對損益造成超過10%的影響。

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK
The market risk inherent in the Company's market risk sensitive instruments and positions is the potential loss arising from adverse changes in: commodity market prices as they relate to the Company's net commodity position, foreign currency exchange rates, and interest rates as described below.
Commodities
The availability and prices of agricultural commodities are subject to wide fluctuations due to factors such as changes in weather conditions, crop disease, plantings, government programs and policies, competition, changes in global demand, changes in customer preferences and standards of living, and global production of similar and competitive crops.
The Company manages its exposure to adverse price movements of agricultural commodities used for, and produced in, its business operations, by entering into derivative and non-derivative contracts which reduce the Company's overall short or long commodity position. Additionally, the Company uses exchange-traded futures and exchange-traded and over-the-counter option contracts as components of merchandising strategies designed to enhance margins. The results of these strategies can be significantly impacted by factors such as the correlation between the value of exchange-traded commodities futures contracts and the cash prices of the underlying commodities, counterparty contract defaults, and volatility of freight markets. In addition, the Company, from time-to-time, enters into derivative contracts which are designated as hedges of specific volumes of commodities that will be purchased and processed, or sold, in a future month. The changes in the market value of such futures contracts have historically been, and are expected to continue to be, highly effective at offsetting changes in price movements of the hedged item. Gains and losses arising from open and closed designated hedging transactions are deferred in other comprehensive income, net of applicable taxes, and recognized as a component of cost of products sold or revenues in the statement of earnings when the hedged item is recognized.
The Company's commodity position consists of merchandisable agricultural commodity inventories, related purchase and sales contracts, energy and freight contracts, and exchange-traded futures and exchange-traded and over-the-counter option contracts including contracts used to hedge anticipated transactions.
The fair value of the Company's commodity position is a summation of the fair values calculated for each commodity by valuing all of the commodity positions at quoted market prices for the period, where available, or utilizing a close proxy. The Company has established metrics to monitor the amount of market risk exposure, which consist of volumetric limits, and value-at-risk (VaR) limits. VaR measures the potential loss, at a 95% confidence level, that could be incurred over a one year period. Volumetric limits are monitored daily and VaR calculations and sensitivity analysis are monitored weekly.

圖9、ADM對市場風險定性與定量揭露之商品價格風險

2. 匯率波動風險之營運分析

ADM的合併子公司分佈在超過70多個國家和地區。在美國之外的大部分子公司，當地貨幣為其功能性貨幣。除了瑞典的子公司，功能性貨幣為歐元。巴西和阿根廷子公司的功能性貨幣為美元。

為了減少匯率波動的相關風險，ADM通過匯率衍生合約來最小化其外幣部位。特別是以歐元、英鎊、加拿大元、巴西雷亞爾計價的外幣，這些外幣都是經常業務發生的當地貨幣或功能性貨幣。此外，ADM也通過匯率衍生品來對沖對海外子公司的投資。這些匯率衍生品合約包括外匯遠期、外幣結售匯、外匯期貨以及場外選擇權。此類合約的市場價值變化與關聯交易幣種價格變動相關性較高，符合避險有效性。外幣的淨部位，即經過衍生品對沖後的外幣部位，假設其價格波動10%，並不會對當期損益造成重大影響。

對於外幣折算部分，ADM採用年末匯率進行計算，並將差額計入其他綜合損益中。外幣折算的部分較小也並不會對當期損益造成影響。

Item 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK (Continued)
<p>Currencies</p> <p>The Company has consolidated subsidiaries in more than 70 countries. For the majority of the Company's subsidiaries located outside the United States, the local currency is the functional currency except certain significant subsidiaries in Switzerland where Euro is the functional currency, and Brazil and Argentina where U.S. dollar is the functional currency. To reduce the risks associated with foreign currency exchange rate fluctuations, the Company enters into currency exchange contracts to minimize its foreign currency position related to transactions denominated primarily in Euro, British pound, Canadian dollar, and Brazilian real currencies. These currencies represent the major functional or local currencies in which recurring business transactions occur. The Company also uses currency exchange contracts as hedges against amounts indefinitely invested in foreign subsidiaries and affiliates. The currency exchange contracts used are forward contracts, swaps with banks, exchange-traded futures contracts, and over-the-counter options. The changes in market value of such contracts have a high correlation to the price changes in the currency of the related transactions. The potential loss in fair value for such net currency position resulting from a hypothetical 10% adverse change in foreign currency exchange rates is not material. Effective April 1, 2022, the Company changed the functional currency of its Turkish entities to the U.S. dollar which did not have a material impact on the Company's consolidated financial statements.</p> <p>The amount the Company considers indefinitely invested in foreign subsidiaries and corporate joint ventures translated into dollars using the year-end exchange rates is \$13.0 billion and \$10.6 billion (\$15.5 billion and \$12.7 billion at historical rates) at December 31, 2022 and 2021, respectively. The increase is due to the increase in retained earnings of the foreign subsidiaries of \$2.8 billion partially offset by the depreciation of foreign currencies versus the U.S. dollar of \$0.4 billion. The potential loss in fair value, which would principally be recognized in Other Comprehensive Income, resulting from a hypothetical 10% adverse change in quoted foreign currency exchange rates is \$1.6 billion and \$1.3 billion for December 31, 2022 and 2021, respectively. Actual results may differ.</p>

圖10、ADM對市場風險定性與定量揭露之匯率波動風險

3. 利率波動風險之營運分析

ADM之長期債務基於可觀察到的本金和現金流進行折現來計算公允價值，通過限制50個基點的變化來衡量其利率風險。

綜上，ADM對市場風險進行定量以及定性揭露，儘管具體的措施在財務報告中無法呈現，但從整體描述以及結論方面，沒有讓投資者產生歧異理解。這就充分的給予投資者信心。

投資者視角，從ADM的10-K報告總結企業避險經營之效用

一、ADM對於衍生品的應用是「期現一體化」經營

無論是被指定為避險工具的衍生工具還是未被指定的衍生工具，ADM將所有的衍生品部位視為一體進行淨敞口管理。衍生品合約包括場內期貨和選擇權合約、商品遠期購銷合約、與農產品、能源、利率以及外匯相關的場外衍生品。該公司利用全球採購、加工和運輸資產網絡以及全球商品採購團隊之間的強大溝通，持續評估價格和基差機會。這也是當前實體企業基於自身產業資訊優勢的「期現一體化」經營戰略。

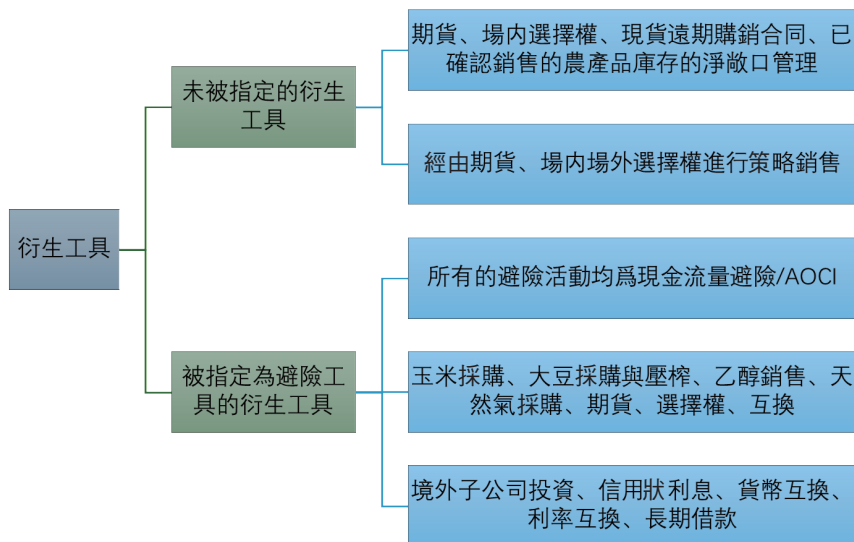


圖11、ADM應用衍生工具之活動總結

二、ADM衍生品業務之於經營效用的判斷邏輯

ADM的農業服務和油籽業務主要是基於農產品的業務，其銷售價格的變化與基於商品的農業原材料的價格變化有關。因此，農產品價格的變動對銷售產品的收入和成本有相對同等的影響。因此，經由避險活動這些業務的毛利率更可能是穩定的。這也是企業避險經營最本質的特徵－獲取穩定的毛利，也就是持續賺錢的能力以及正向經營現金流。

ADM的碳水化合物解決方案業務和營養業務也利用農產品（或農產品衍生產品）作為原料。然而，在類似的避險操作中，農產品市場價格的變化並不一定與銷售產品成本的變化有關。因此，衡量避險業務的效果淨利潤率可能更有說服力。

因此，整體來看，企業避險經營之效用或許不能從一份簡單的財務報告中就獲得更為詳細的證實，但可以從公司整體歷年的淨利潤率看出，ADM可以連續16年保持利潤率為正（請參見圖12），正是體現了衍生品之於企業的經營效用。

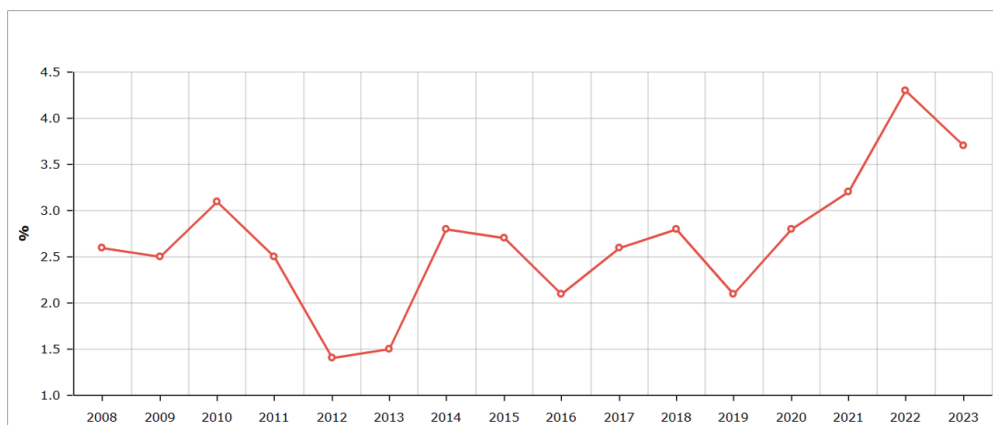


圖12、ADM歷年利潤率（連續16年保持利潤率為正）

（作者是業內有避險理論和業務實踐的專業人士，深度參與世界500強金川集團的避險業務管控系統創設，有豐富的避險會計經驗，對企業避險經營有深入研究。）

