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Financial Analysis in CORPORATE CREDIT MANAGEMENT

Valeo
PHILIP MORRIS INTERNATIONAL
MOTOROLA SOLUTIONS
Google

Allianz
Allianz Trade
billtrust
POLSKI ZWIĄZEK ZARZĄDZANIA WIERZYTELNOŚCIAMI
RiskMan
Risk Management
Atradius
Managing risk, enabling trade

abbvie
AMER SPORTS
BAYER
Lundbeck
Rockwell Automation
McCormick
LUMILEDS
Electrolux
ECOLAB
Kimberly-Clark
ArcelorMittal
zoetis
DYWIDAG
iiyama
DELPHI
OLYMPUS
synthos chemical innovations
Heineken
StanleyBlack&Decker
CLARIANT

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PICM Associate (PICMa)

CAREER

DEVELOPMENT

EFFICIENCY

TOOLS

EDUCATION

Explore the Credit Manager's Zone

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Financial Analysis in CORPORATE CREDIT MANAGEMENT

I. The role of Corporate Credit Management
II. Corporate credit risk – concepts and definitions
III. Quantitative factors – first but not most important
IV. Qualitative factors – ignorance which could cost you money
V. Creditworthiness modelling

The role of Corporate Credit Management

I. Why do we assess the credit risk?
II. The role of Credit Management
III. The role of Credit Manager
IV. Business & customers
V. Business process vs. silos organization

Why do companies exist?

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Companies' goal: cash generation

	A	B	C	D	E	F	G	H	I	J	K
1	© Corporate Finance Institute. All rights reserved.				Startup year						Terminal year
2					2016	2017	2018	2019	2020	2021	2022
3	*Balance Sheet Check*				*OK*	*OK*	*OK*	*OK*	*OK*	*OK*	*OK*
267	**Valuation**										
268											
269	EBIT				(2,573,040)	(1,340,320)	57,140	1,233,760	2,782,080	4,941,600	5,738,560
270											
271	**Net Operating Loss**										
272	Opening Balance				0	2,573,040	3,913,360	3,856,220	2,622,460	0	0
273	Current Loss				2,573,040	1,340,320	0	0	0	0	0
274	Sub Total				2,573,040	3,913,360	3,913,360	3,856,220	2,622,460	0	0
275	Loss Used				0	0	57,140	1,233,760	2,622,460	0	0
276	Closing Balance				2,573,040	3,913,360	3,856,220	2,622,460	0	0	0
277											
278	**Free Cash Flow**										
279	Earning Before Tax				(2,573,040)	(1,340,320)	57,140	1,233,760	2,782,080	4,941,600	5,738,560
280	Interest				0	0	0	0	0	0	0
281	EBIT				(2,573,040)	(1,340,320)	57,140	1,233,760	2,782,080	4,941,600	5,738,560
282	Less Taxes				0	0	0	0	39,905	1,235,400	1,434,640
283	Less Capex				500,000	100,000	100,000	550,000	250,000	1,100,000	600,000
284	Plus Depreciation				100,000	120,000	140,000	250,000	300,000	420,000	520,000
285	Less Changes in Working Capital				72,314	289,534	434,654	732,196	573,939	806,624	567,112
286	**Unlevered Free Cash Flow**				**(3,045,354)**	**(1,609,854)**	**(337,514)**	**201,564**	**2,218,236**	**2,219,576**	**3,656,808**
287											
288	**DCF Valuation**										
289	NPV of Forecast			20%	(1,098,526)						
290	Terminal Value (EBITDA multiple)			8.0x	50,068,480						
291	NPV of Terminal Value				13,973,194						
292	**Total Enterprise Value**				**12,874,668**						
293											

https://corporatefinanceinstitute.com/resources/knowledge/modeling/dcf-model-training-free-guide/

What role of Credit Management?

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Why do we assess the credit risk?

NEGOTIATION

PROFITABILITY PROTECTION

SEGMENTATION

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The role of Credit Management

Different or common goals?

Credit/Risk  Sales/Profit

Strong competition – **without sales company could not survive** – but how about the liquidity …

Understanding of the role in the organization (dialog, meetings, trainings)

Respect and Cooperation (win-win)

Success (for the company as a whole)

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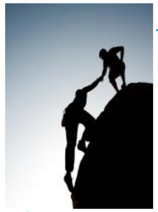
THE ROLE OF CREDIT MANAGER



Coach

Sales man

Optimist

Bridge builder

Calculator of probability

Guru

Analyst

The role of Credit Manager

Risk vs. Reward

"Financial Excellence replaces Operational Excellence. The focus here is on risk/reward thinking. The **credit manager who wants to support the board of directors at this level must let go of Operational Excellence** with a focus on automation and standard processes such as the annual review of credit limits. He must speak the language of the board.

One needs to understand **how credit management fits into the strategic agenda and be capable of participating in the dynamics, recognizing connections with other strategic elements on the agenda**. This is about providing an insight to the board of directors, which then makes decisions in a controlled manner and with integrity. Traditionally, credit managers focused on limiting credit risks. Risk avoidance is one-dimensional, it means thinking of risks negatively. Conversely, Risk Management is always about risk versus reward. You must mention risk and reward in the same breath."

The 'new' credit manager is the financial disruptor

Vijay Gangadin, partner at AethiQs strategic consultancy, was a guest speaker at one of the latest event organized by the Nederlandse Vereniging voor Credit Management. AethiQs advises organizations on strategic decision-making and change processes. Vijay focuses on strengthening and accelerating these processes for boards of directors - in traditional (business) areas such as financial and strategic management, as well as in newer areas such as risk management and data management. He connects old and new areas with his approach so it creates genuine value for governance. In addition, he is affiliated with a number of national and overseas universities and business schools, and he is a motivator in his field.

Cees Jansen, Chairman of the Board at Nederlandse Vereniging voor Credit Management, talks with Vijay Gangadin about changing role of the credit manager.

Vijay Gangadin
partner at AethiQs

Cees Jansen
Chairman of the Board at Nederlandse Vereniging voor Credit Management

Cees Jansen: **The theme of the Credit Summer event is T-Shaped Credit Management.** Operations and others. That is a positive development, but not, it is not enough. Accord- work has been on Operational Excellence. In short: 'Lower the cost of money'. The next

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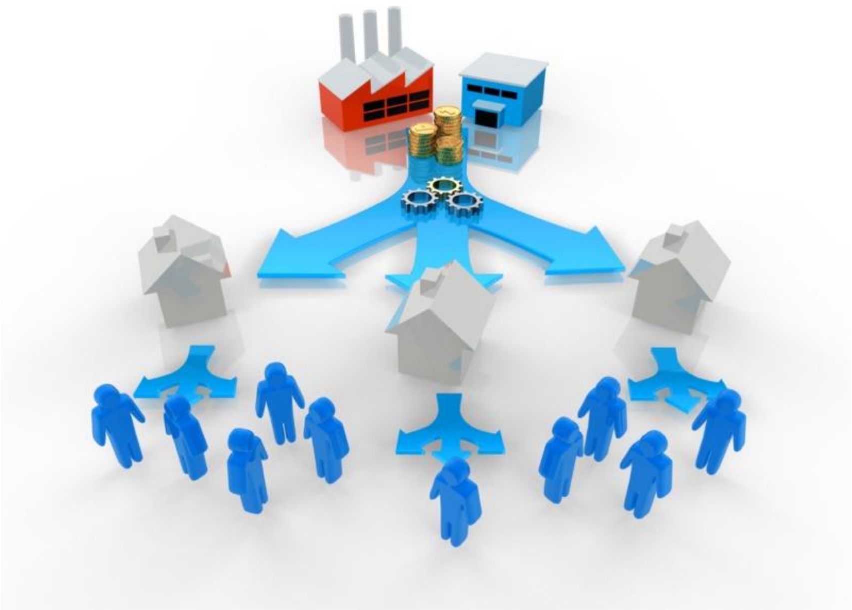
Business & customers

- What are the product lines in my company?
- What is the market share of my company?
- Which companies are the main competitors in each type of product?
- Which companies are the main customers for each product line?
- Are there regular sales / logistics / marketing meetings?

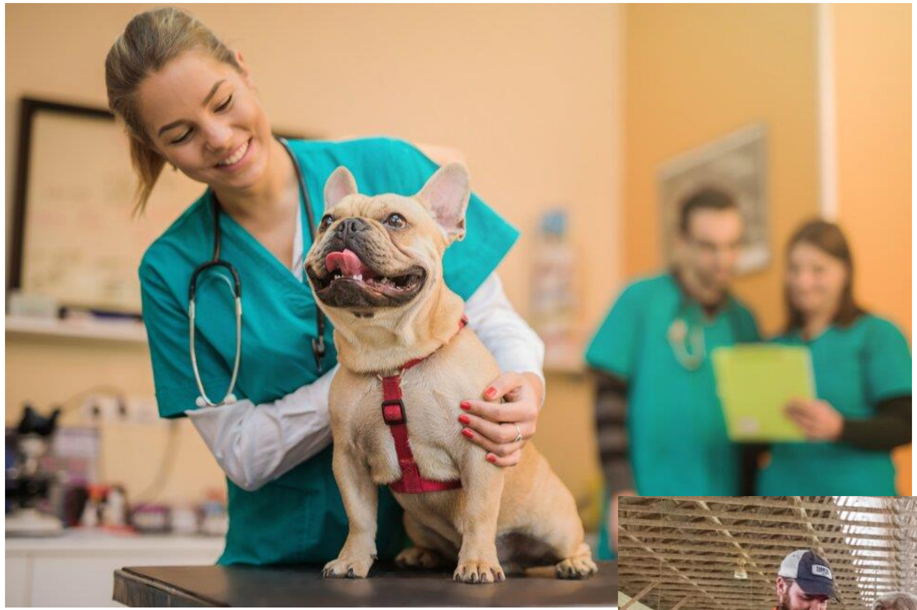
Business & customers

Know your business



Know your customers

Business & customers



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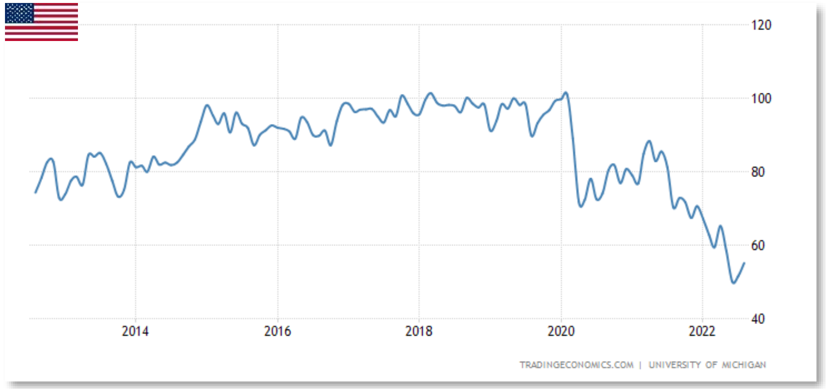
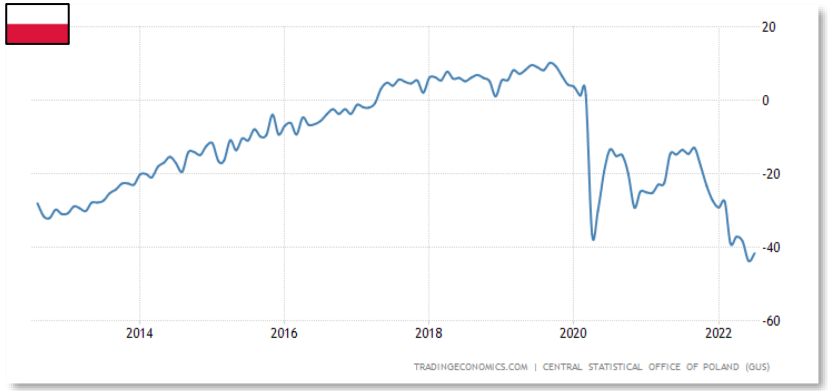
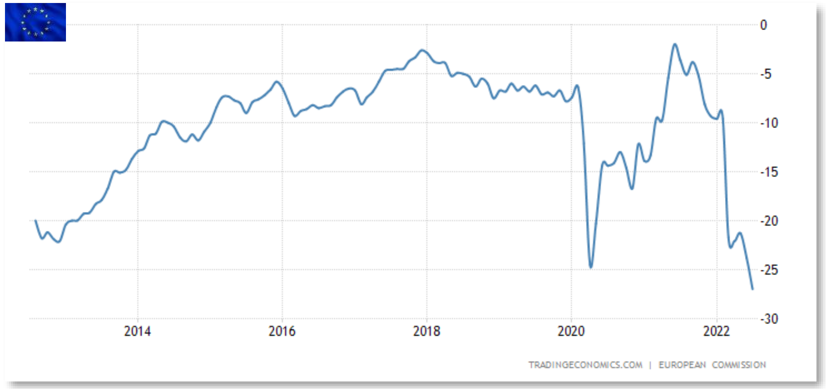
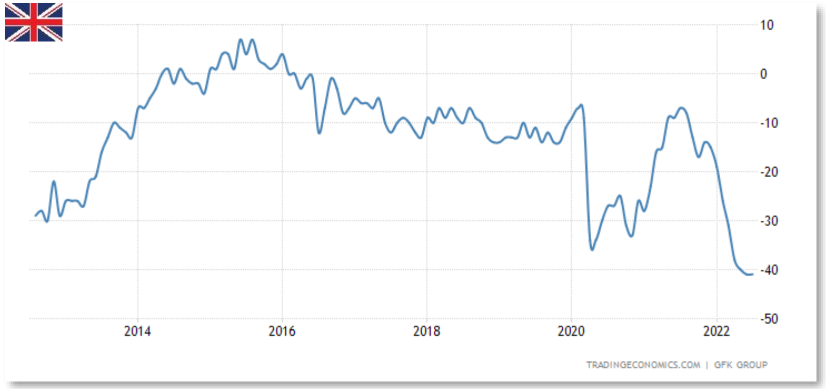
Business & customers





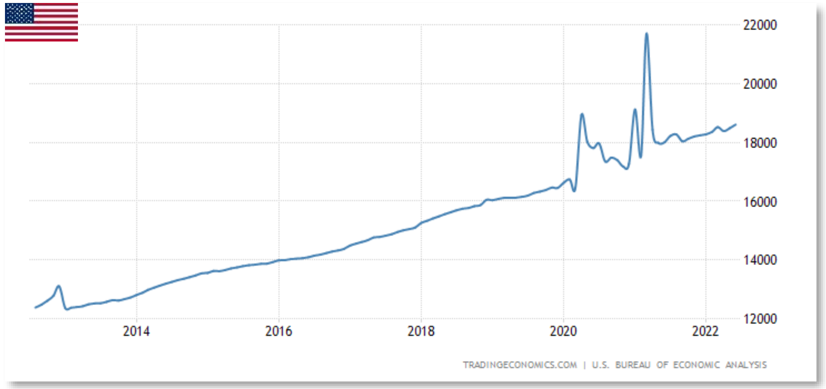


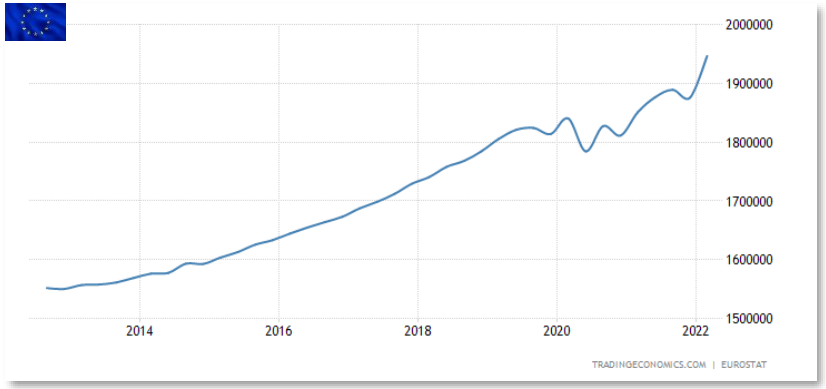


Consumer sentiment is a statistical measurement of the overall health of the economy as determined by consumer opinion. It takes into account people's feelings toward their current financial health, the health of the economy in the short-term, and the prospects for longer-term economic growth, and is widely considered to be a useful economic indicator.

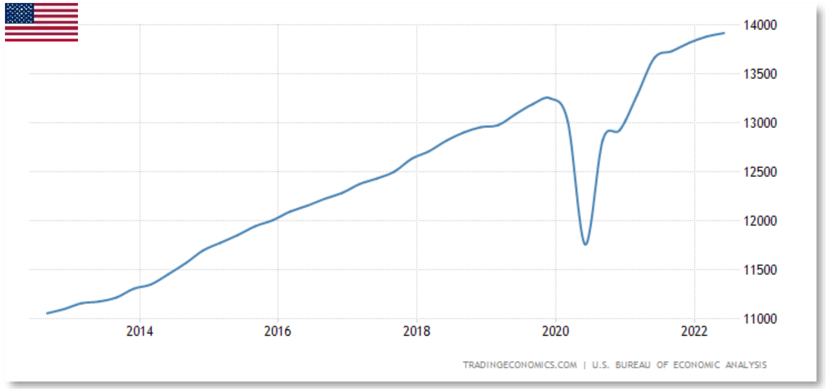
Investopedia

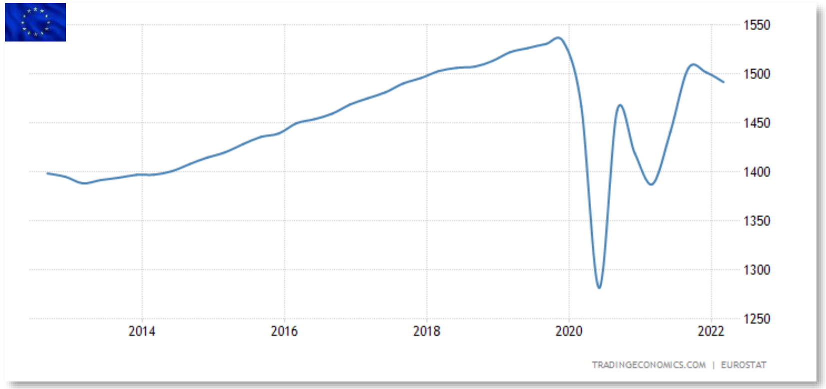
Business & customers





Disposable income, also known as **disposable personal income (DPI)**, is the amount of money that an individual or household has to spend or save after income taxes have been deducted. At the macro level, disposable personal income is closely monitored as one of the key economic indicators used to gauge the overall state of the economy.

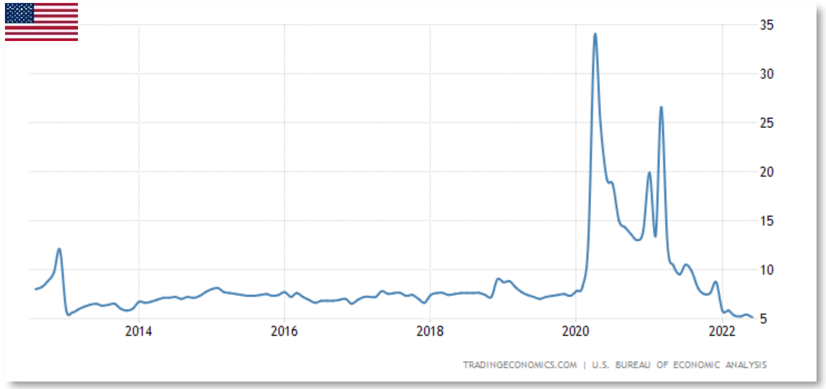


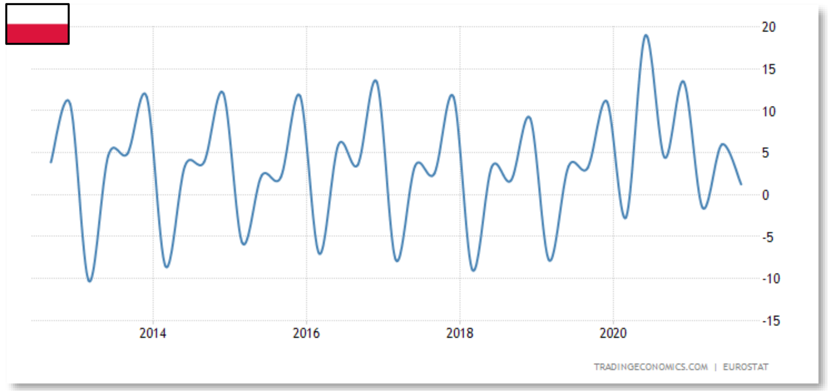


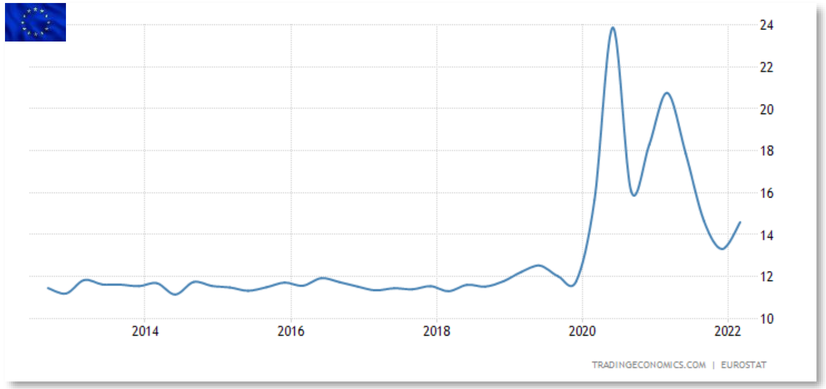
Consumer spending is the total money spent on final goods and services by individuals and households for personal use and enjoyment in an economy. Contemporary measures of consumer spending include all private purchases of durable goods, nondurable goods, and services. Consumer spending can be regarded as complementary to personal saving, investment spending, and production in an economy.

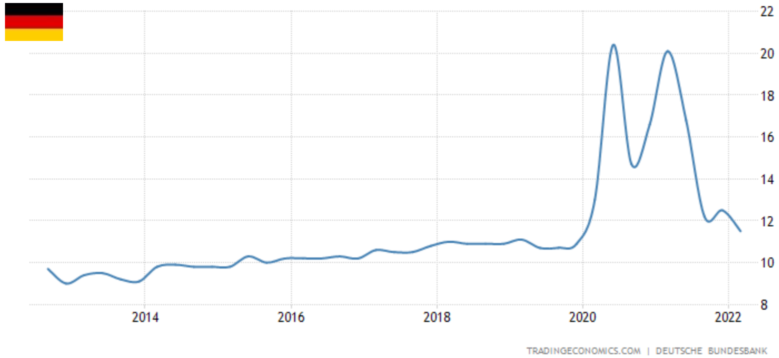
Investopedia

Business & customers









Personal Saving Rate (PSR) is calculated as the ratio of personal saving to DPI. Personal saving is equal to personal income less personal outlays and personal taxes; it may generally be viewed as the portion of personal income that is used either to provide funds to capital markets or to invest in real assets such as residences.(https://www.bea.gov/national/pdf/all-chapters.pdf)

Household Saving Rate (HSR) is defined as gross household saving divided by gross disposable income, with the latter being adjusted for the change in pension entitlement of households. Gross saving is the part of the gross disposable income which is not spent as final consumption expenditure. Therefore, the saving rate increases when gross disposable income grows at a higher rate than final consumption expenditure. Saving rates can be measured on either a gross or net basis. Net saving rates are measured after deducting consumption of fixed capital (depreciation).

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FRED ECONOMIC DATA | ST. LOUIS FED

eurostat Statistics Explained

Business & customers

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Forbes

INVESTING

2022 Retail Forecast: Pricing, Inventory Bubble, Shopping Seamlessly And Consumer Experience

Greg Petro Contributor

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Dec 17, 2021, 12:00pm EST

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Retail inventory in 2022: Normal is still nowhere in sight

With Target taking the vocal lead, retailers are flushing out excess inventory to reset for the holidays. How much they'll sell then is anybody's guess.

Published July 8, 2022

FORTUNE RANKINGS MAGAZINE NEWSLETTERS PODCASTS MORE SEARCH SIGN IN Subsc

Inventory issues are hurting the bottom line. It's time for a hybrid approach to supply chains

BY KAL RAMAN

August 15, 2022 at 4:11 PM GMT+2

As recent earnings reports have shown, many retailers were punished this year due to having higher inventory than necessary, which created a drag on profits.

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How one company created

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Michael Burry Warns of the Bullwhip Effect, Says the Fed Could Reverse Course

Investing.com | Stock Markets | Jun 27, 2022 11:09AM ET

BUSINESS & CUSTOMERS

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Michael Burry Warns of the Bullwhip Effect, Says the Fed Could Reverse Course

By Sam Boughedda

Michael Burry, the investor made famous by the movie "The Big Short," and the founder of Scion Asset Management, said in a tweet Monday that the "Bullwhip Effect" is happening in the retail sector.

Burry added that this could lead to the Federal Reserve reversing its rate rises and its Quantitative Tightening policy.

The Tweet reads:

"This supply glut at retail is the Bullwhip Effect. Google it. Worth understanding for your investing endeavors. Deflationary pulses from this- -> disinflation in CPI later this year --> Fed reverses itself on rates and QT --> Cycles."

The tweet also links to an article from CNN, which states retailers are considering allowing customers to keep items they return so they don't have to take them back and add them to swelling inventories.

It's not the first time in recent months that Burry has raised concerns about the economy. In May, he tweeted that the current market conditions are "like watching a plane crash."

CNN BUSINESS Markets Tech Media Success More Audio

Just keep your returns: Stores weigh paying you not to bring back unwanted items

By Parija Kavilanz, CNN Business

Updated 0343 GMT (1143 HKT) June 27, 2022

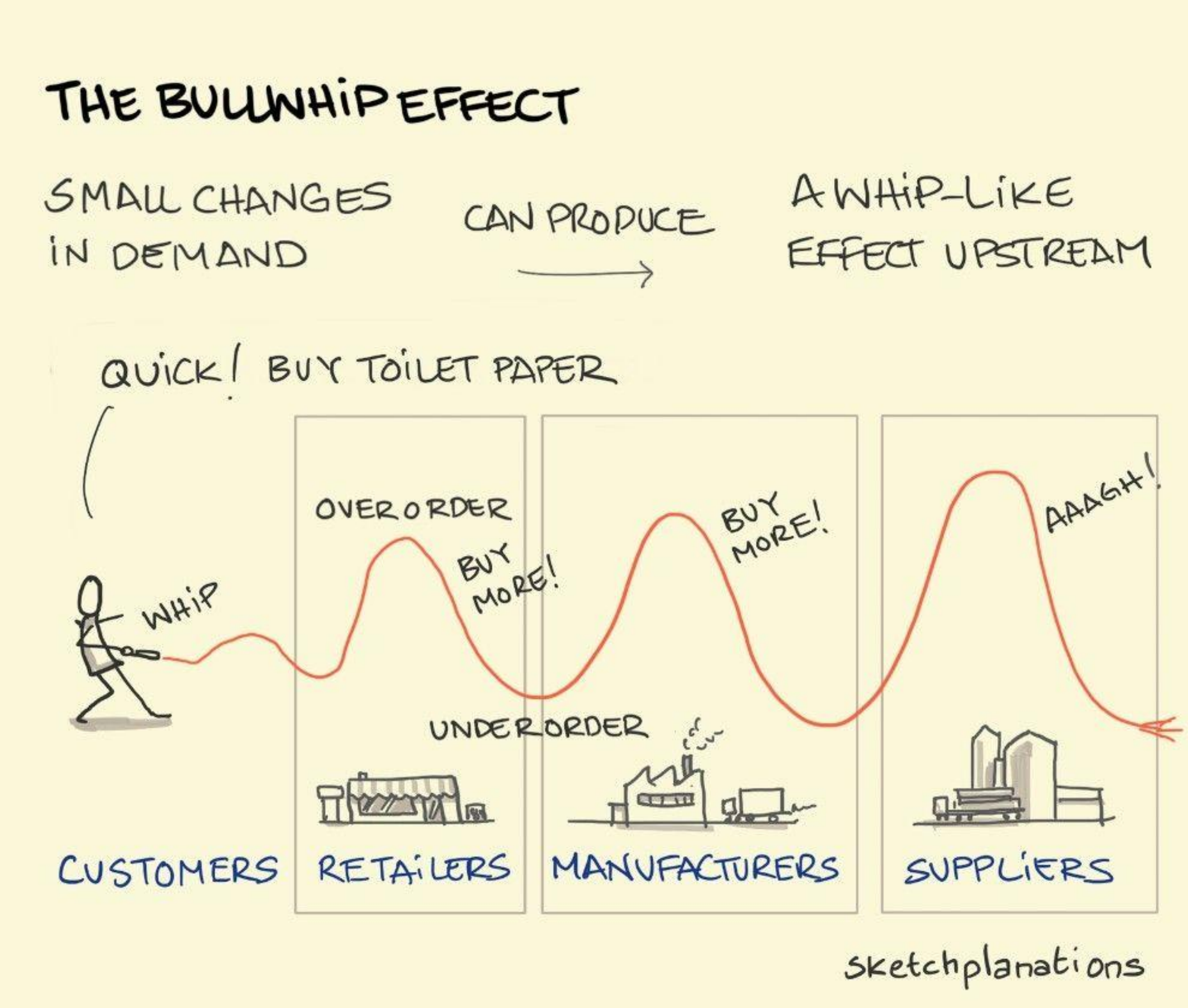
New York (CNNBusiness) – The chaotic mix of record fuel prices and an unending supply chain crisis have retailers considering the unthinkable: Instead of returning your unwanted items, just keep them.

In recent weeks, some of the biggest store chains, including Target (TGT), Walmart, (WMT) Gap (GPS), American Eagle Outfitters (AEO) and others have reported in their latest earnings calls that they have too much inventory of stuff ranging from workout clothes, spring-time jackets and hoodies to garden furniture and bulky kids' toys. It's costing them tons of money to store it.

Now add on to that glut another category of product that stores have to deal with: returns.

So instead of piling returned merchandise onto this growing inventory heap, stores are considering just handing customers their money back and letting them hang onto the stuff they don't want.

Business & customers



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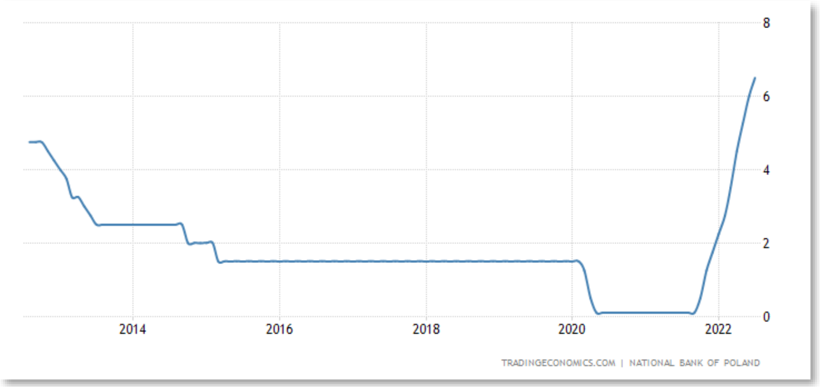
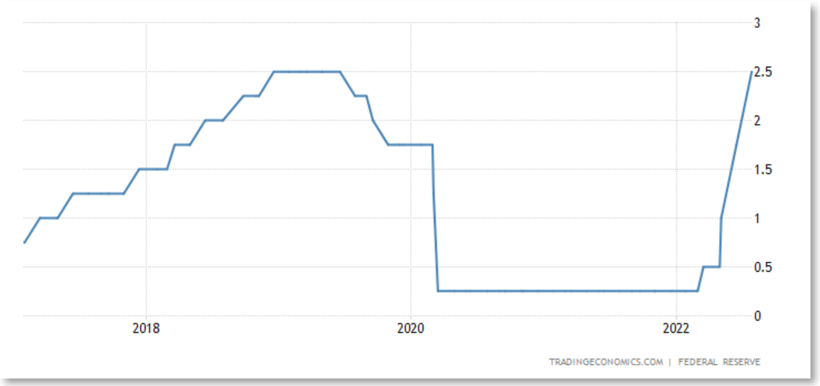


INFLATION

INTEREST RATE

BENCHMARK



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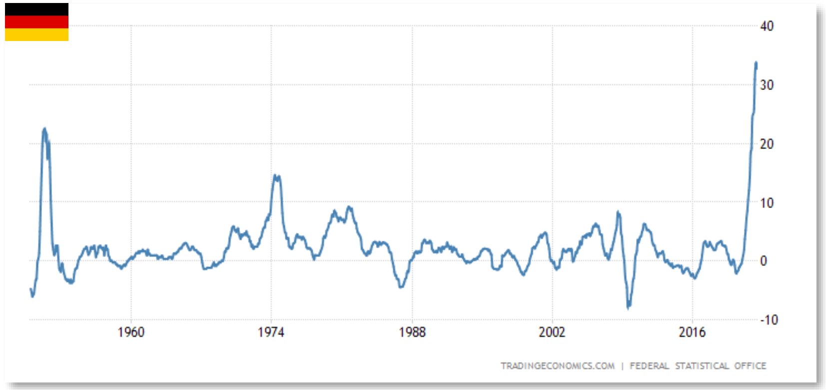
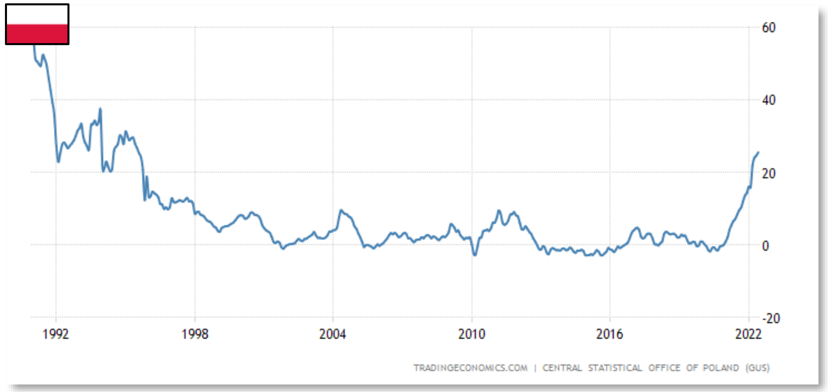
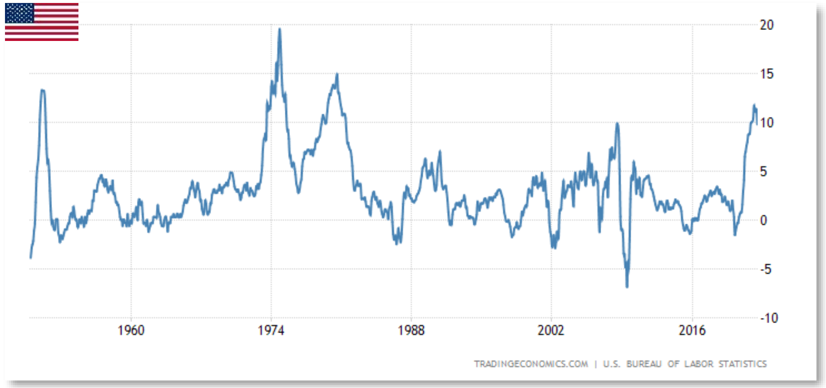
INFLATION PPI – Producer prices change refers to year over year change in price of goods and services sold by manufacturers and producers in the wholesale market during a given period.







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Business & customers (competitors)

Merck

$3.3b

€21.3b

$48b

$6.7b

€43.5b

$2.7b

Competition

Although our business is the largest based on revenue in the animal health industry (which includes medicines, vaccines and diagnostics), we face competition in the regions in which we compete. Principal drivers of competition vary depending on the particular region, species, product category and individual product, and include new product development, quality, price, service and promotion to veterinary professionals, pet owners and livestock producers.

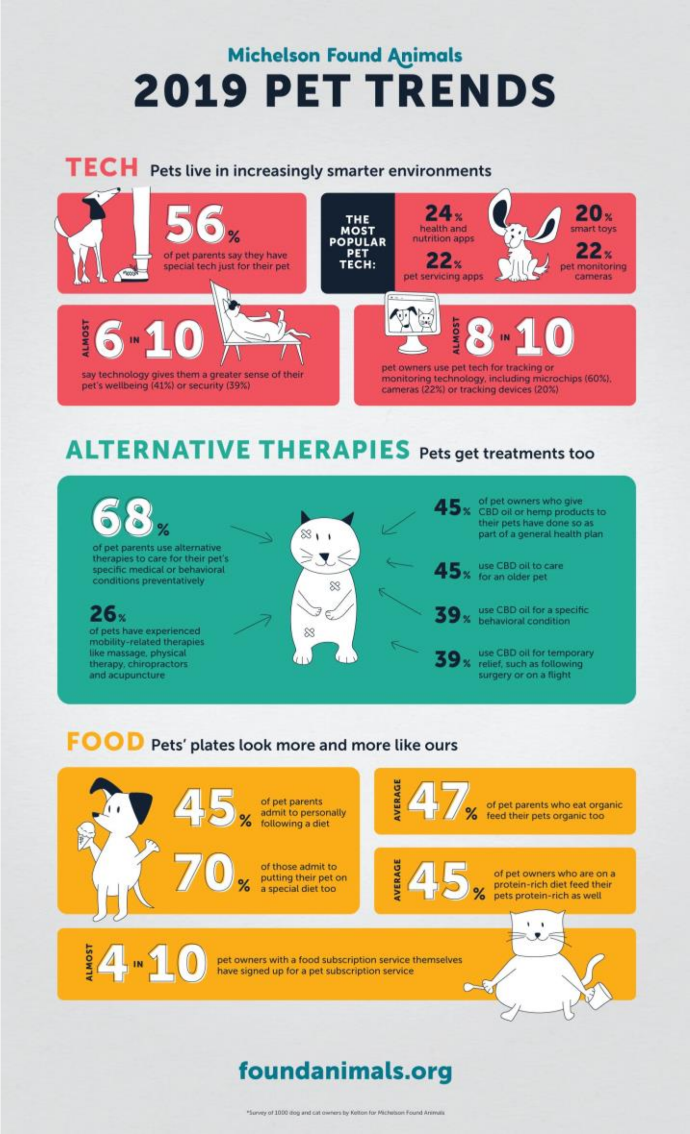
Our primary competitors include animal health medicines, vaccines and diagnostic companies such as Boehringer Ingelheim Animal Health Inc., the animal health division of Boehringer Ingelheim GmbH; Merck Animal Health, the animal health division of Merck & Co., Inc.; Elanco Animal Health; and IDEXX Laboratories. There are also several new start-up companies working in the animal health area. In addition, we compete with hundreds of other producers of animal health products throughout the world.

Business & customers

Animal Health Market: The market growth remains steady despite supply chain disruptions caused by the pandemic

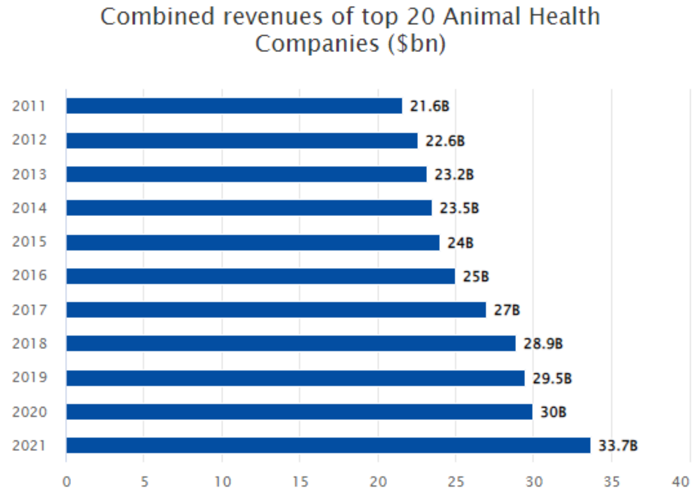
Pandemic Impact	Post COVID Outlook
Despite disruption due to the COVID-19 pandemic, the animal health industry witnessed a steady growth of 8% from 2019 to 2020. The economic downturn is relatively lower in the animal health market as compared to others	There will be a shift in business models for veterinarians. Traditional veterinary practices generate a majority of their revenues from selling high-margin products like pharmaceuticals. However, as the adoption of telehealth has been on the rise, the demand for knowledge, expertise, and consulting solutions will increase
The trend for telemedicine has witnessed significant growth during the pandemic. Online channels, such as eCommerce, are the most preferred distribution channels by pet owners for purchasing vet products & pet food. The E-Commerce segment witnessed a lucrative growth rate of 10.7%	Animal healthcare is rebounding faster as compared to other sectors. Large-scale animal health companies are focusing on innovative strategies to gain a competitive edge
Major players operating in the market witnessed growth during the pandemic despite the restriction & supply chain disruption. IDEXX reported a 12% increase in year-on-year revenue, driven by the Companion Animal Group (CAG) diagnostics segment in December 2020	Consolidation will continue in the market. For instance, Merck Animal Health completed the acquisition of Poultry Sense Ltd. in February 2021 to expand its vertical in the poultry business and have technology in health & environmental monitoring solutions

GRAND VIEW RESEARCH



Business & customers

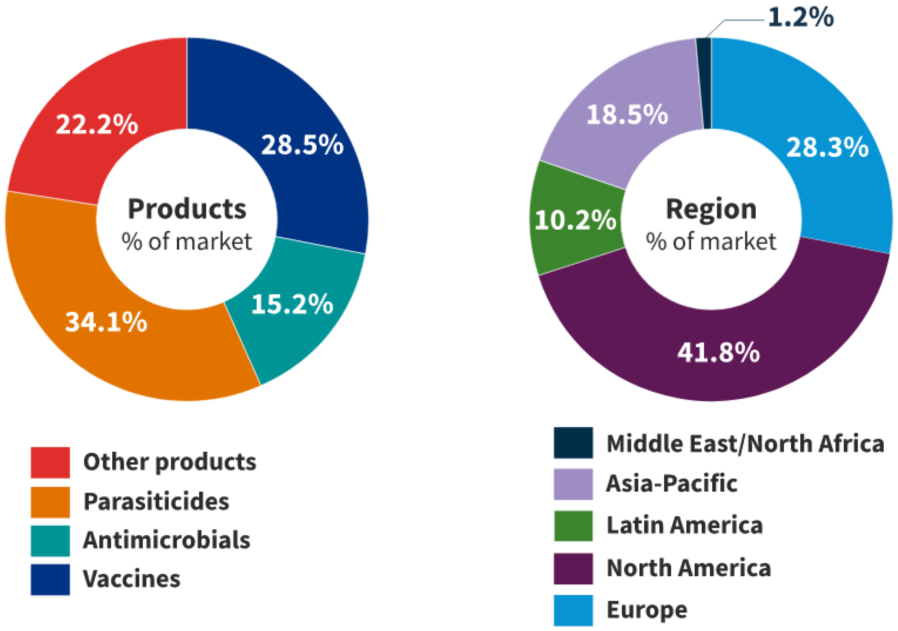
Animal Health Sector Revenue Growth[20]



Annual Growth Rate (2011–21): 9.4%

2021 Growth Rate: 12%

Global Animal Health Sector Portfolio (2021)[18]



Health for Animals
global animal health association

BUSINESS & CUSTOMERS

ZOETIS INC. AND SUBSIDIARIES
CONSOLIDATED STATEMENTS OF INCOME

	Year Ended December 31,		
(MILLIONS OF DOLLARS AND SHARES, EXCEPT PER SHARE DATA)	**2021**	2020	2019
Revenue	**$ 7,776**	$ 6,675	$ 6,260
Costs and expenses:			
Cost of sales[(a)]	**2,303**	2,057	1,992
Selling, general and administrative expenses[(a)]	**2,001**	1,726	1,638
Research and development expenses[(a)]	**508**	463	457
Amortization of intangible assets	**161**	160	155
Restructuring charges and certain acquisition-related costs	**43**	25	51
Interest expense, net of capitalized interest	**224**	231	223
Other (income)/deductions—net	**48**	17	(57)
Income before provision for taxes on income	**2,488**	1,996	1,801
Provision for taxes on income	**454**	360	301
Net income before allocation to noncontrolling interests	**2,034**	1,636	1,500
Less: Net loss attributable to noncontrolling interests	**(3)**	(2)	—
Net income attributable to Zoetis Inc.	**$ 2,037**	$ 1,638	$ 1,500
Earnings per share attributable to Zoetis Inc. stockholders:			
Basic	**$ 4.29**	$ 3.44	$ 3.14
Diluted	**$ 4.27**	$ 3.42	$ 3.11
Weighted-average common shares outstanding:			
Basic	**474.348**	475.502	478.128
Diluted	**476.717**	478.569	481.787
Dividends declared per common share	**$ 1.075**	$ 0.850	$ 0.692

(a) Exclusive of amortization of intangible assets, except as disclosed in *Note 3. Significant Accounting Policies—Amortization of Intangible Assets, Depreciation and Certain Long-Lived Assets.*

zoetis

Profitability?

ZOETIS INC. AND SUBSIDIARIES
CONSOLIDATED BALANCE SHEETS

(MILLIONS OF DOLLARS, EXCEPT PER SHARE DATA)	**December 31, 2021**	December 31, 2020
Assets		
Cash and cash equivalents[(a)]	**$ 3,485**	$ 3,604
Accounts receivable, less allowance for doubtful accounts of $17 in 2021 and $20 in 2020	**1,133**	1,013
Inventories	**1,923**	1,628
Other current assets	**389**	366
Total current assets	**6,930**	6,611
Property, plant and equipment, less accumulated depreciation of $2,072 in 2021 and $1,952 in 2020	**2,422**	2,202
Operating lease right of use assets	**181**	192
Goodwill	**2,682**	2,694
Identifiable intangible assets, less accumulated amortization	**1,474**	1,710
Noncurrent deferred tax assets	**100**	94
Other noncurrent assets	**111**	106
Total assets	**$ 13,900**	$ 13,609
Liabilities and Equity		
Short-term borrowings	**$ —**	$ 4
Current portion of long-term debt	**—**	600
Accounts payable	**436**	457
Dividends payable	**154**	119
Accrued expenses	**710**	556
Accrued compensation and related items	**392**	295
Income taxes payable	**38**	46
Other current liabilities	**67**	93
Total current liabilities	**1,797**	2,170
Long-term debt, net of discount and issuance costs	**6,592**	6,595
Noncurrent deferred tax liabilities	**320**	378
Operating lease liabilities	**151**	163
Other taxes payable	**257**	260
Other noncurrent liabilities	**239**	270
Total liabilities	**9,356**	9,836
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Common stock, $0.01 par value: 6,000,000,000 authorized, 501,891,243 and 501,891,243 shares issued; 472,574,090 and 475,317,751 shares outstanding at December 31, 2021 and 2020, respectively	**5**	5
Treasury stock, at cost, 29,317,153 and 26,573,492 shares of common stock at December 31, 2021 and 2020, respectively	**(2,952)**	(2,230)
Additional paid-in capital	**1,068**	1,065
Retained earnings	**7,186**	5,659
Accumulated other comprehensive loss	**(764)**	(730)
Total Zoetis Inc. equity	**4,543**	3,769
Equity attributable to noncontrolling interests	**1**	4
Total equity	**4,544**	3,773
Total liabilities and equity	**$ 13,900**	$ 13,609

(a) As of December 31, 2021 and 2020, includes $3 million and $2 million, respectively, of restricted cash.

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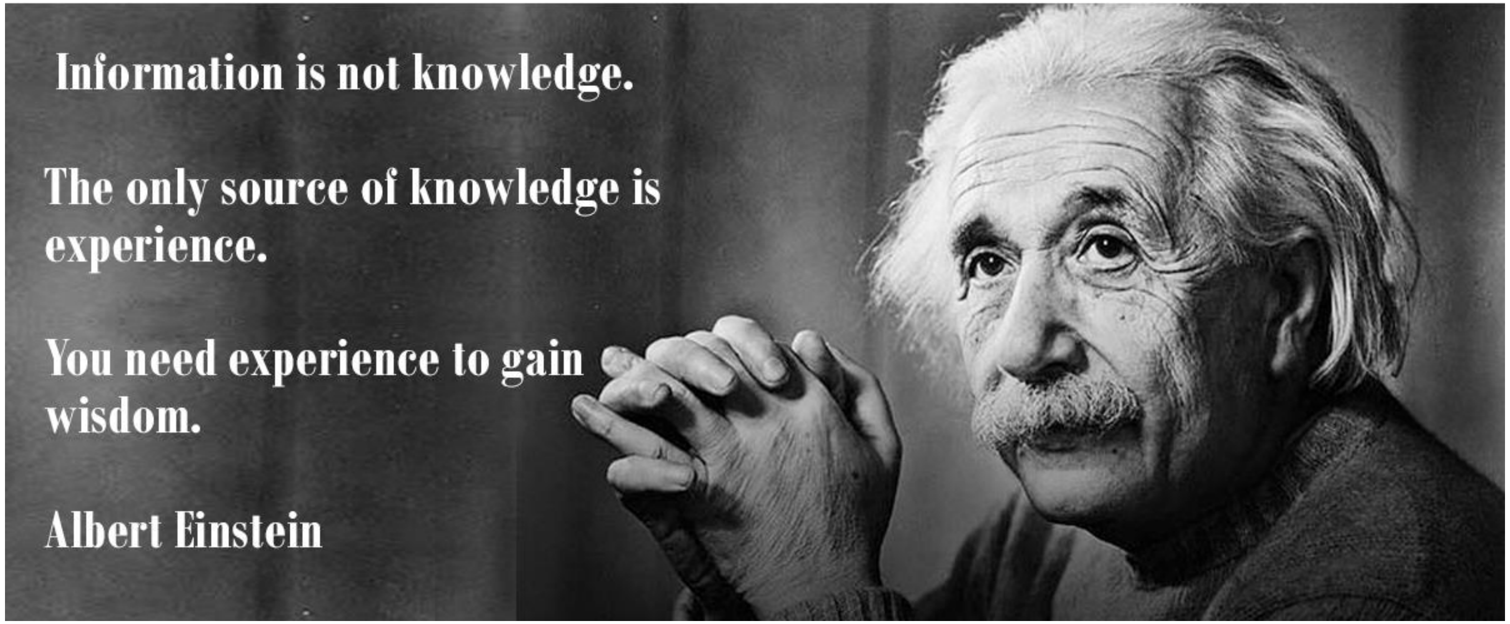
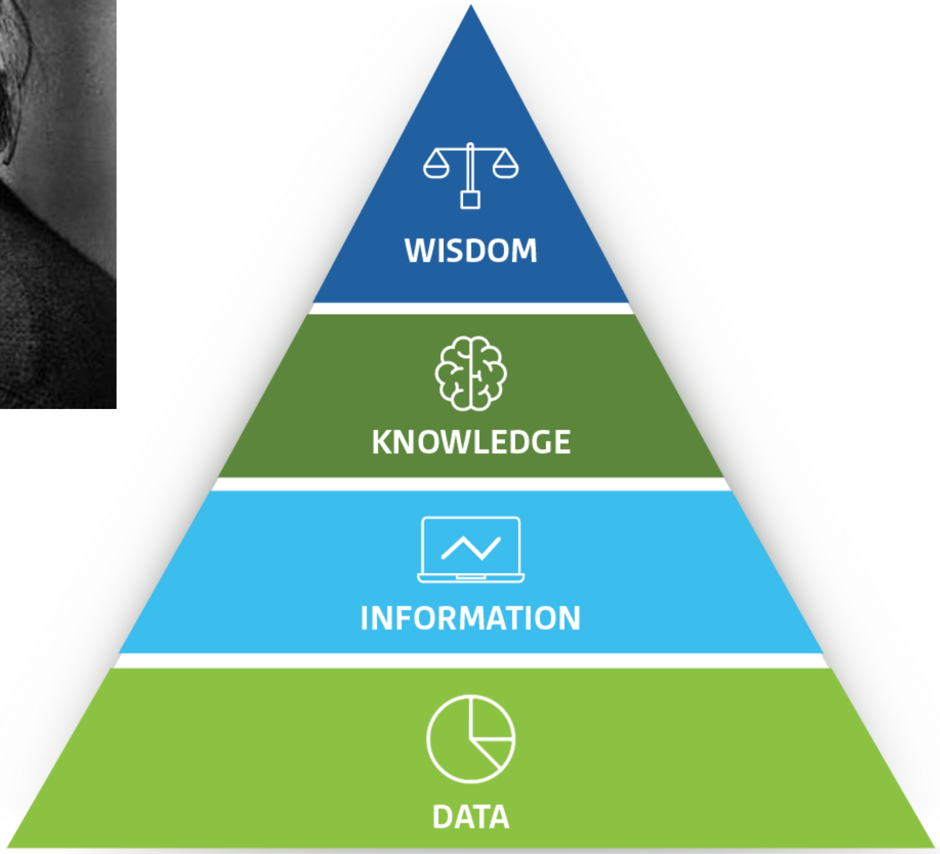


__Dane__ reprezentują fakty. __Informacja__ to dane zawarte w komunikacie, zinterpretowane przez odbiorcę, mające dla niego znaczenie i wnoszące do jego świadomości element nowości, czyli zmniejszające jego niewiedzę. __Wiedza__ powstaje z informacji, które są dla odbiorcy istotne i zostały zweryfikowane w praktyce. W dzisiejszym świecie, gdzie cierpimy na nadmiar danych, __potrzebujemy informacji oraz narzędzi zamieniających to na wiedzę__. Znajomość na przykład modelu dyskryminacyjnej oceny niewypłacalności nie będzie złotym środkiem na ocenę potencjalnego bankructwa kontrahenta.

Credit Management w warunkach dużej niepewności – PICM



DIKW model

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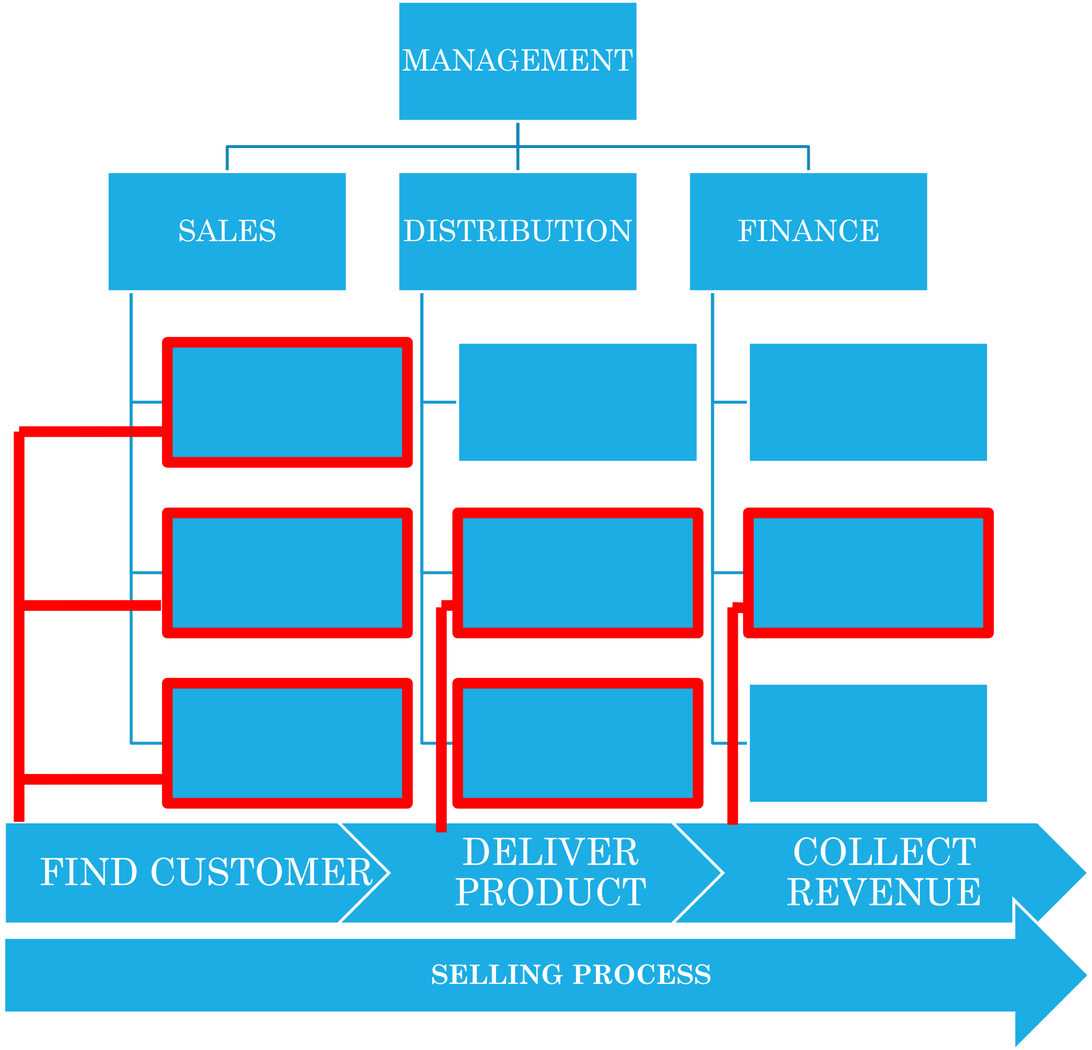
Business process vs. silos



The role of Corporate Credit Management

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CORPORATE CREDIT RISK – CONCEPTS & DEFINITIONS

I. Risk management – the base for good decision making
II. Definition and types of credit risk
III. Estimating credit risk and measuring credit decisions
IV. Financial liquidity and credit risk
V. Payment credibility and creditworthiness
VI. Quantitative and qualitative credit risk factors

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What I am managing?

Risk

Risk is a probability that something will go wrong.

Types of RISK

- Systematic risk – beyond someone's control
- Specific risk – under someone's control

Business risk	sales risk
	reputation and marketing risk
	new product acceptation risk
	competitiveness risk
	product quality risk
	economical environment risk
Market risk	exchange rate risk
	stock prices risk
	interest rate risk
	financial instruments liquidity risk
Credit risk	country risk
	default risk
	liquidity risk
	counterparty risk
	concentration risk
Operational risk	system risk
	control risk
	catastrophic risk
	fraud risk
	legal risk
	organizational risk

Risk – How Zoetis manages its risks?

Summary of Risk Factors

Our business is subject to a number of risks of which you should be aware before making a decision to invest in our common stock. These risks are more fully described in this "Risk Factors" section, including the following:

Risks related to our business and industry

- The COVID-19 pandemic has negatively affected the global economy; has disrupted our and our customers', suppliers', and vendors' operations; has negatively affected certain elements of our business and operations; and may materially adversely affect our business, financial condition, results of operations and/or cash flows.
- Our products are subject to unanticipated safety, quality or efficacy concerns.
- Our results of operations are dependent on the success of our top-selling products.
- Generic and other products may be viewed as more cost-effective than our products.
- The animal health industry is highly competitive.
- Disruptive innovations and advances in medical practices and technologies could negatively affect the market for our products.
- Consolidation of our customers and distributors could negatively affect the pricing of our products.
- Changes in distribution channels for companion animal products could negatively impact our market share, margins and distribution of our products.
- Restrictions and bans on the use of and consumer preferences regarding antibacterials in food-producing animals may become more prevalent.
- Perceived adverse effects linked to the consumption of food derived from animals that utilize our products or animals generally could cause a decline in the sales of such products.
- Increased regulation or decreased governmental financial support relating to the raising, processing or consumption of food-producing animals could reduce demand for our livestock products.
- An outbreak of infectious disease carried by animals could negatively affect the sale and production of our products.
- Our business may be negatively affected by weather conditions, natural disasters and the availability of natural resources.
- Climate change could have a material adverse impact on our and our customer's businesses.
- Our business may be harmed if we are unable to retain and hire executive officers or other key personnel.

Our business is subject to risk based on global economic conditions.

Macroeconomic, business and financial disruptions could have a material adverse effect on our operating results, financial condition and liquidity. Certain of our customers and suppliers could be affected directly by an economic downturn and could face credit issues or cash flow problems that could give rise to payment delays, increased credit risk, bankruptcies and other financial hardships that could decrease the demand for our products or hinder our ability to collect amounts due from customers. If one or more of our large customers, including distributors, discontinue their relationship with us as a result of economic conditions or otherwise, our operating results and financial condition may be materially adversely affected. In addition, economic concerns may cause some pet owners to forgo or defer visits to veterinary practices or could reduce their willingness to treat pet health conditions or even to continue to own a pet. Infectious disease outbreaks, pandemics and widespread fear of spreading disease through human contact can cause disruptions to or negatively impact our, our customers' and our distributors' business operations, which could materially adversely affect our operating results. Furthermore, our exposure to credit and collectability risk is higher in certain international markets and our ability to mitigate such risks may be limited. While we have procedures to monitor and limit exposure to credit and collectability risk, there can be no assurances such procedures will effectively limit such risk and avoid losses.

Increased regulation or decreased governmental financial support relating to the raising, processing or consumption of food-producing animals could reduce demand for our livestock products.

Companies in the livestock industries are subject to extensive and increasingly stringent regulations. If livestock producers are adversely affected by new regulations or changes to existing regulations, they may reduce herd sizes or become less profitable and, as a result, they may reduce their use of our products, which may materially adversely affect our operating results and financial condition. Furthermore, new or more stringent regulations could, directly or indirectly, impact the use of one or more of our products. More stringent regulation of the livestock industry or our products could have a material adverse effect on our operating results and financial condition. Also, many food-producing companies, including livestock producers, benefit from governmental subsidies, and if such subsidies were to be reduced or eliminated, these companies may become less profitable and, as a result, may reduce their use of our products.

An outbreak of infectious disease carried by animals could negatively affect the sale and production of our products.

Sales of our livestock products could be materially adversely affected by the outbreak of disease carried by animals, which could lead to the widespread death or precautionary destruction of animals as well as the reduced consumption and demand for animal protein. In addition,

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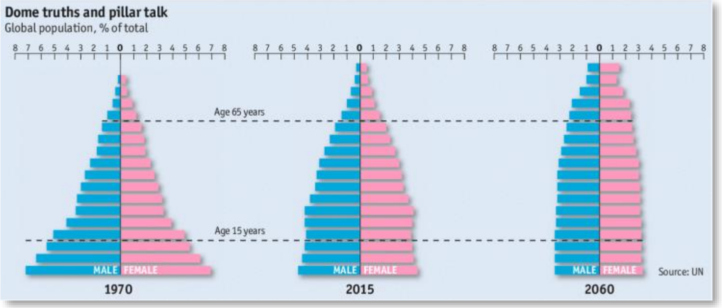
SOURCE: Zoetis-2021-Annual-Report.pdf (q4cdn.com)

RISK – OTHERS



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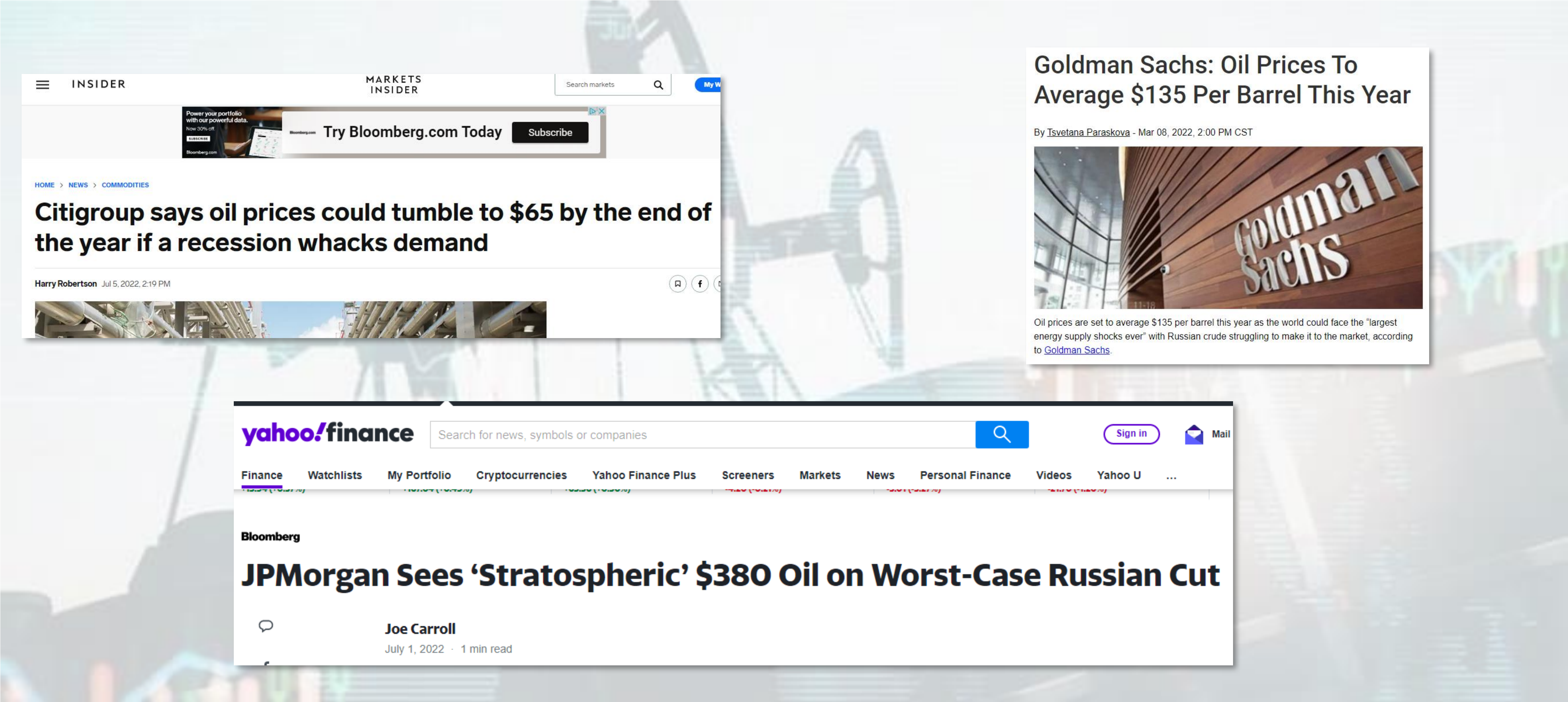
RISK – FORECASTING



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Citigroup says oil prices could tumble to $65 by the end of the year if a recession whacks demand

Harry Robertson Jul 5, 2022, 2:19 PM

Goldman Sachs: Oil Prices To Average $135 Per Barrel This Year

By Tsvetana Paraskova - Mar 08, 2022, 2:00 PM CST

Oil prices are set to average $135 per barrel this year as the world could face the "largest energy supply shocks ever" with Russian crude struggling to make it to the market, according to Goldman Sachs.

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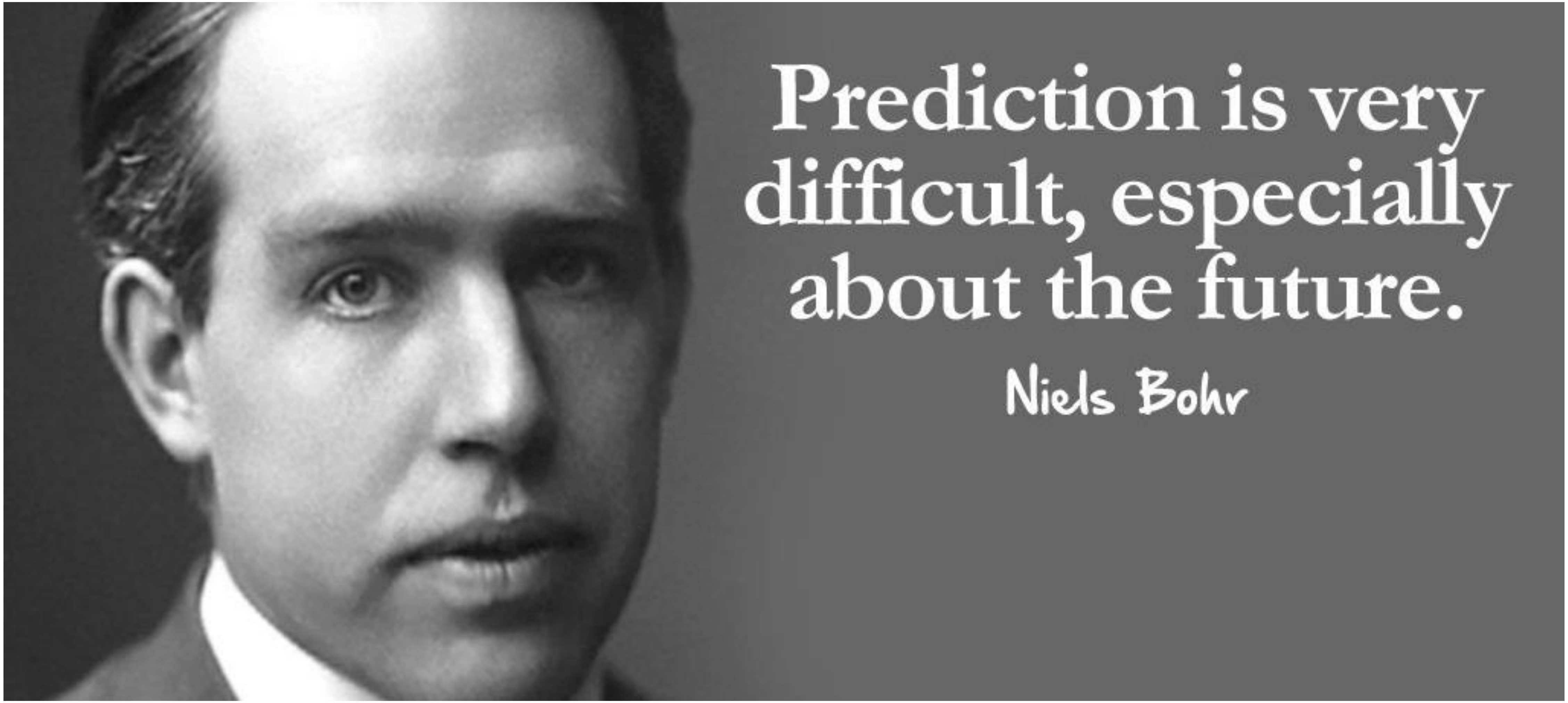
Bloomberg

JPMorgan Sees 'Stratospheric' $380 Oil on Worst-Case Russian Cut

Joe Carroll

July 1, 2022 · 1 min read

RISK – FORECASTING



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RISK MANAGEMENT

The main steps in a **risk management**:
- Identification
- Evaluation (measurement)
- Treatment
- Monitoring

A good credit risk management tries to **avoid large exposures on high-risk counterparts**.

Given the above, the credit risk management is the **process of controlling the potential consequences of credit risk**.

The process **follows a standard risk management framework**, namely:

- **the cause of the risk has to be identified**
- **the extent of the risk has to be evaluated**
- **decisions made as to how this risk is to be managed**

CREDIT RISK

IN BUSINESS SENSE: Credit risk can be defined as the potential that a contractual party will fail to meet its obligations in accordance with the agreed terms. Credit risk is also variously referred to as default risk, performance risk or counterparty risk.

Taking into consideration **the source**:

- **External** – macroeconomic and social factors (competitiveness, business cycle, fiscal and monetary policy, inflation, unemployment etc.), political factors (trade deregulation and liberalization), demographic factors (society oldness) and technological factors (IT),
- **Internal** – employees' qualification, agreements'' portfolio diversification, kind and level of collateral agreements, accounting standards.

Because of **the scope** we have:

- **Individual risk** – it is a single risk as a function of the level of possible loss and its probability. This risk could be limited by creditworthiness assessment before granting of the credit line, limited level of credit line, credit collateral, creditworthiness monitoring once the credit line is granted.
- **Portfolio risk** – it's a combined risk, which depends on the individual credit decisions, their probability of default and their interdependence.

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Credit risk assessment

There are three characteristics that define credit risk **IN NUMERICAL SENSE**:

- exposure (to a party that may possibly default or change adversely on its ability to perform)
- the likelihood that this party will default (or the default probability) on its obligations (PD)
- the recovery rate (that is, how much can be retrieved if a default takes place)

Note that the larger the first two elements, the greater the exposure. On the other hand, the higher the amount that can be recovered, the lower the risk. Formally, we can express the risk as:

$$\textbf{Credit risk} = \textbf{Exposure} \times \textbf{Probability of default} \times \overbrace{\textbf{(1 less Recovery rate)}}^{\textbf{loss given default (LGD)}}$$

Credit risk assessment

EXAMPLE

FULL RISK: 100 x 1 x (1-0) = 100

FULLY COVERED RISK: 100 x 1 x (1-1) = 0

ZERO RISK: 100 x 0 x (1-0) = 0

$$\textbf{Credit risk = Exposure x Probability of default x } \overbrace{\textbf{(1 less Recovery rate)}}^{\textbf{loss given default (LGD)}}$$

Credit decision

PRINCIPLES OF THE CREDIT DECISION

avoid unnecessary bureaucracy and delays

- Take time to reach a decision
- Do not be too proud to ask for a second opinion
- Get full information from the customer and do not make unnecessary assumptions, i.e. do not lend to a business you do not fully understand
- Do not take a customer's statements and representations at face value and ask for evidence to support the statements
- Distinguish between facts, estimates and opinions when forming a judgement
- Think again when the 'gut reaction' suggests caution, even though the factual assessment looks satisfactory

How to make the good credit decision?

Two different **types of error** can arise **when evaluating a credit decision**.

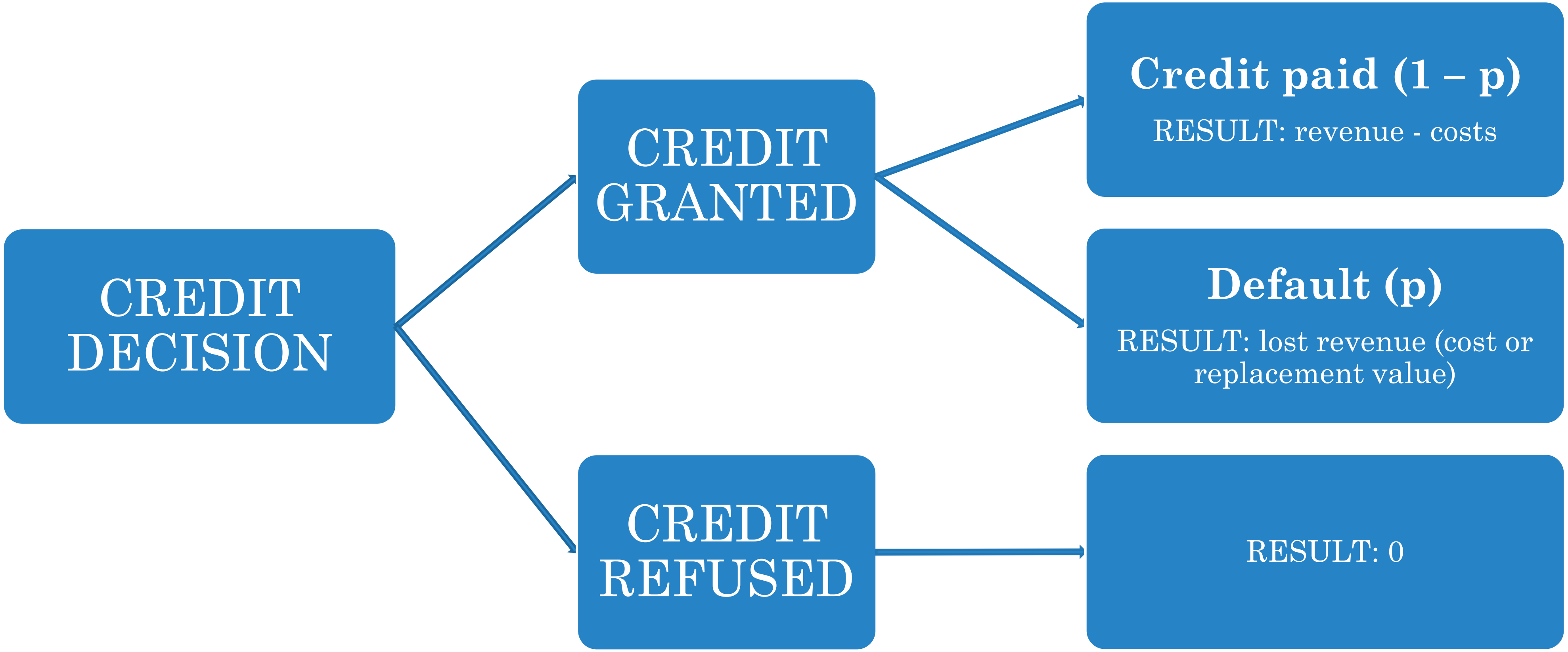
TYPE I

advancing credit to a lesser quality credit, that is a ‘bad credit’, that has mistakenly been classified as a ‘good credit’ and thereby incurring an unanticipated loss

TYPE II

misclassifying a ‘good credit’ as a ‘bad credit’ and thereby forgoing an opportunity to earn profit

CREDIT DECISION ASSESSMENT



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Credit decision assessment

CREDIT GRANTED:

PV(Revenue – Costs) x (1 – p) – PV(lost revenue) x p

CREDIT REFUSED: 0

PV(Revenue – Costs) x (1 – p) – PV(lost revenue) x p = 0

$$PV(20) \times (1 - p) - PV(100) \times p = 0$$

$$20 - 20p = 100p$$

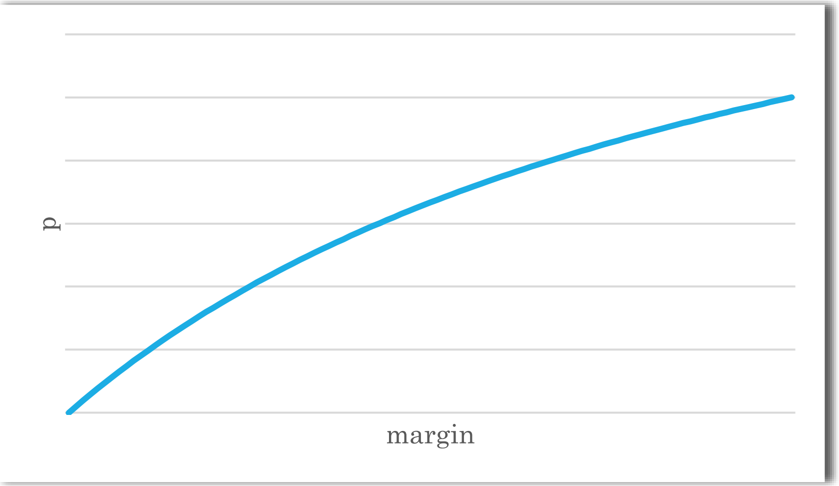
$$20 = 120p$$

$$\frac{20}{120} = p$$

$$p = 0{,}167$$

LGD = 1

- if the company earns a margin of 20 per cent on sales, then it will break-even, that is, be indifferent between extending credit and refusing credit if
- with a probability of loss of 0.167, the firm is indifferent between accepting a credit risk and refusing it



Credit risk management

- Managing receivables should be **proactive**, not just reactive, and even worse, passive.
- Firms sell to clients' different levels of credit risk, and therefore their ability to pay liabilities and credibility must be **constantly assessed and monitored**.

What is the KEY to SUCCESS?

- **Create** a suitable credit risk management **environment**
- Action within the framework of a **clear process** of granting credit lines
- **Maintaining appropriate** credit risk management, measurement and monitoring **structures**
- Ensure **adequate credit risk control** tools

Financial liquidity and credit risk

Financial liquidity is defined by

- **ability to repay its current liabilities and expenses** (income approach) → profitability and liquidity (indicators)
- **status and value of the entity's assets** (property approach) → transferability (selling) of assets without loss of value

The better the liquidity, the greater the share of **assets with a high degree of liquidity**

The risk associated with the credit sale (**credit risk**) is the likelihood that the payee will not pay in time for the goods or service rendered (**BUSINESS SENSE**). This means that the company will not have the money to settle its own obligations. It is necessary to **examine the financial credibility of business partners**.

Creditworthiness vs. Credibility

Credit analysis is not just about counting the financial indicators!

The purpose of credit analysis is to define:

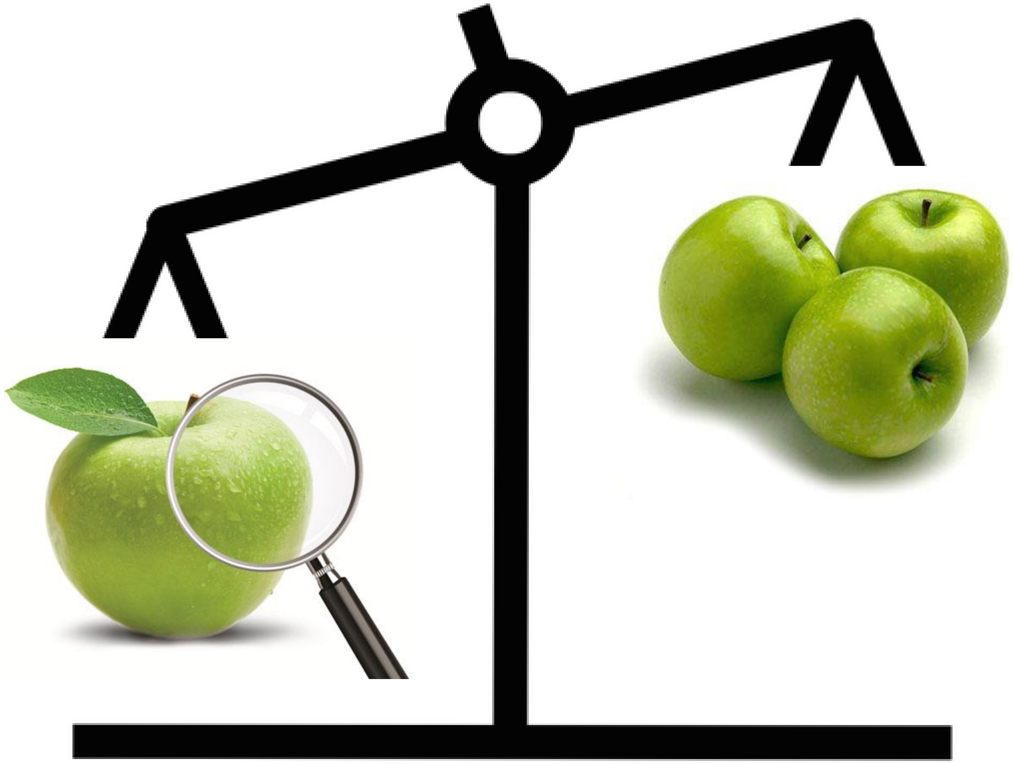
- **Creditworthiness** - financial ability to pay the loan taken with interest at the dates specified in the contract
- **Payment credibility** - sufficient amount of debtor's financial resources to repay the debt plus interest, but also his will to do so, and the occurrence of favourable conditions in the debtor's environment, independent of his will, which will not interfere
- **Business solvency** - the ability to repay all liabilities from the business assets

QUANTITATIVE AND QUALITATIVE CREDIT RISK FACTORS

It is clear that the ability to pay liabilities should be measured not only taking into account financial parameters, measurable in the form of financial indicators (**quantitative factors**).

The business risk associated with non-quantitative parameters (**qualitative factors**) also has a significant impact on solvency.

The question arises: **Which of these factors have a greater, more significant impact on the assessment of the creditworthiness of the company under investigation?**



QUANTITATIVE AND QUALITATIVE CREDIT RISK FACTORS

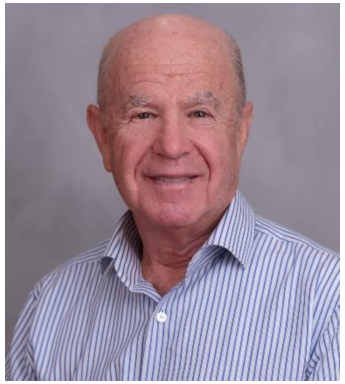
Creditworthiness is based on **business risk** (objective, subjective, internal, external)

QUANTITATIVE MEASURES							40%	78%
"scoring for liquidity ratios"	0,8	1	0,8	0,4	0,2			
FINANCIAL RATIOS	SCORE					output	WEIGHT	SCORE
	1	0,8	0,6	0,4	0,2			
current ratio	> 2,0	1,3 - 2,0	0,76 - 1,2	0,5 - 0,75	< 0,5	0,8	10%	0,08
quick ratio	> 1,5	1,25 - 1,5	1,0 - 1,25	0,75 - 1,0	< 0,75	0,8	10%	0,08
leverage / gearing	< 0,5	0,5 - 0,75	0,75 - 1,0	1,0 - 1,5	> 1,5	0,8	15%	0,12
gross margin	> 8%	8% - 6%	6% - 3,5%	3,5% - 1%	< 1%	0,6	5%	0,03
DSO	< 45 days	45 - 84 days	85 - 95 days	96 - 115 days	> 116 days	0,8	10%	0,08
DIO	< 30 days	30 - 40 days	40 - 50 days	50 - 60 days	> 60 days	1	10%	0,10
credit position ratio	> 2,0	1,5 - 2,0	1,25 - 1,5	1,0 - 1,25	< 1	0,4	10%	0,04
inventory to total assets	< 0,3	0,3 - 0,35	0,35 - 0,4	0,4 - 0,6	> 0,6	1	10%	0,10
DPO	< 50 days	50 - 60 days	60 - 70 days	70 - 80 days	> 80 days	0,8	20%	0,16
				MAX	9	7	100%	0,79

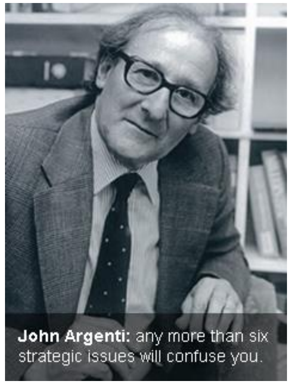
total SCORE	92%	A	0,01%

range	quality	risk class	risk	DR / PD
< 10 %	bad	E	very big	60,00%
10% - 29%	poor	D	big	8,00%
30% - 59%	average	C	limited	2,00%
60% - 79%	good	B	small	0,02%
80% - 100%	high	A	minimal	0,01%

QUALITATIVE MEASURES			60%		100%
			WEIGHT	output	SCORE
PAYMENT MORALITY (AR) - delays			35%	1,00	0,35
< 0 days	1			x	
< 30 days	0,75				
50 - 60 days	0,5				
> 60 days	0,25				
COMPANY STRATEGY			10%	1,00	0,10
MANAGEMENT SKILLS			10%	1,00	0,10
STABILITY OF THE MANAGEMENT BOARD			5%	1,00	0,05
MARKET POSITION			10%	1,00	0,10
MARKET REACH			10%	1,00	0,10
DEPENDENCY ON CUSTOMERS			10%	1,00	0,10
DEPENDENCY ON SUPPLIERS			10%	1,00	0,10
MAX	8,00	8,00	100%		1,00



Altman's Z-Score Model



A-score bankruptcy prediction method

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Corporate credit risk – concepts & definitions

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QUANTITATIVE FACTORS – FIRST BUT NOT MOST IMPORTANT

I. Reading a Balance Sheet
II. Understanding Income Statement
III. Cash Flow analysis
IV. Assessing Financial Performance
V. Creative Accounting

reading a **Balance Sheet**

- Balance Sheet, also known as a „Statement of financial position", **shows a company's assets and liabilities, and the owner's equity**.
- The main concept of a balance sheet is that **total assets must equal the liabilities plus the equity** of the company.
- When you describe **assets in this way it shows you how they were financed**. This is either by borrowing money (liability) or by using the owner's money (equity).
- Unlike the other basic financial statements, the **balance sheet applies to a single point in time** rather than a period od time. This is usually the date that corresponds to the end of an organization's financial year, and consequently the balance sheet is often described as **representing a „snapshot" of a company's financial condition**.

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reading a **Balance Sheet**

- An organization's balance sheet can take one of two forms:

  1) **Report form** – uses a vertical format to show assets followed by liabilities and then equity.

  2) **Account form** – lists assets on the left-hand side and equity plus liabilities on the right-hand side.

- The assets are usually listed first (in order of liquidity) followed by the liabilities. The difference between the assets and the liabilities is known as equity and this equity must equal assets minus liabilities.

A Balance Sheet

- Shows what tools are available to an organization to remain profitable
- Is the only financial statement that relates to specific point in time & not a period of time
- Can be presented either in Report or Account format

Liabilities + Shareholder Equity = Total Assets

Balance Sheet Facts: → Categories are listed in order of liquidity → Assets are followed by liabilities → Equity MUST EQUAL assets minus liabilities

reading a **Balance Sheet**

- The **assets section** will usually have accounts for things like stock/inventory, buildings, equipment, and money owed to the company.
- The **liabilities section** will have accounts for money owed by the company to suppliers and its own workers in the form of wages that have not yet been paid.
- The **equity section** will show the net assets, often referred to as shareholder equity, and consists of issued capital and reserves, both controlling interests, as in a parent or holding organization, and non-controlling interest in equity.
- The limitations of the income statement mean that you cannot see what assets a company owns or what its liabilities are.

ASSETS

Current Assets
- Cash
- Accounts Receivable
- Inventory
- others

Fixed Assets
- Land & Buildings
- Equipment
- Intangible assets
- others

LIABILITIES

Current Liabilities
- Accounts Payable
- others

Long-term Liabilities
- Long term loans
- others

Equity
- Capital stock
- Retained earnings
- others

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reading a **Balance Sheet**

PREMIER TOOLS AND CONSOLIDATED SUBSIDIARY
Balance Sheet
March 31, 20X3

Assets		
Current assets		
Cash	$150,000	
Trading securities	70,000	
Accounts receivable	110,000	
Inventories	220,000	$ 550,000
Property, plant & equipment		
Land	$135,000	
Buildings and equipment (net)	375,000	510,000
Intangible assets		
Patent	$225,000	
Goodwill	65,000	290,000
Total assets		$1,350,000

Liabilities		
Current liabilities		
Accounts payable	$160,000	
Salaries payable	30,000	
Interest payable	10,000	$ 200,000
Long-term liabilities		
Notes payable	$240,000	
Mortgage liability	110,000	350,000
		$ 550,000
Stockholders' equity		
Capital stock	$300,000	
Retained earnings	500,000	800,000
Total liabilities and equity		$1,350,000

COLGATE-PALMOLIVE COMPANY
Consolidated Balance Sheets
As of December 31,
(Dollars in Millions Except Share and Per Share Amounts)

	2020	2019
Assets		
Current Assets		
Cash and cash equivalents	$ 888	$ 883
Receivables (net of allowances of $89 and $76, respectively)	1,264	1,440
Inventories	1,673	1,400
Other current assets	513	456
Total current assets	4,338	4,179
Property, plant and equipment, net	3,716	3,750
Goodwill	3,824	3,508
Other intangible assets, net	2,894	2,667
Deferred income taxes	291	177
Other assets	857	753
Total assets	$ 15,920	$ 15,034
Liabilities and Shareholders' Equity		
Current Liabilities		
Notes and loans payable	$ 258	$ 260
Current portion of long-term debt	9	254
Accounts payable	1,393	1,237
Accrued income taxes	403	370
Other accruals	2,341	1,917
Total current liabilities	4,404	4,038
Long-term debt	7,334	7,333
Deferred income taxes	426	507
Other liabilities	2,655	2,598
Total liabilities	14,819	14,476
Commitments and contingent liabilities	—	—
Shareholders' Equity		
Common stock, $1 par value (2,000,000,000 shares authorized, 1,465,706,360 shares issued)	1,466	1,466
Additional paid-in capital	2,969	2,488
Retained earnings	23,699	22,501
Accumulated other comprehensive income (loss)	(4,345)	(4,273)
Unearned compensation	(1)	(2)
Treasury stock, at cost	(23,045)	(22,063)
Total Colgate-Palmolive Company shareholders' equity	743	117
Noncontrolling interests	358	441
Total equity	1,101	558
Total liabilities and equity	$ 15,920	$ 15,034

What a **Balance Sheet** tells?

An Organization's Balance Sheet shows:

- Liquidity & Solvency
- Tangible versus Intangible Assets
- Key Ratios
- Common-size analysis

Liquidity	Solvency
An organization's ability to meet its short term obligations	The ability of an organization to sustain its activity into the future

understanding **Income Statements**

- The purpose of an income statement is **to be able to measure an organization's financial performance over a specific accounting period**.
- It provides a **summary of how company's revenues and expenses are incurred**, as well as showing if it has made a net profit or loss.
- The income statement is divided into two parts:

    1) **Operating items section** – provides information about revenues and expenses that are a direct result of regular organization operations

    2) **Non-Operating items section** – details any revenue and expense information about activities that are not tided directly to these operations

understanding **Income Statements**

There are a variety of different types of income statements, but the most common are:

- **Multi-step format** (*wariant kalkulacyjny*)
- **Single-step format** (*wariant porównawczy*)

absence of gross margin and operating margin

Consolidated statement of profit or loss

x € million

	Notes	2020	2019	2018
Continuing operations				
Net sales	2, 3	**1,946**	**2,395**	**2,346**
Cost of net sales		(1,478)	(1,811)	(1,780)
Gross margin		**468**	**584**	**566**
Other operating income	4	**4**	**13**	**12**
Employee expenses	5	(230)	(275)	(275)
Accommodation costs		(31)	(30)	(38)
Costs to sell		(17)	(20)	(17)
Logistics costs		(86)	(112)	(108)
General costs		(33)	(33)	(26)
Depreciation of tangible fixed assets and right-of-use assets	13, 14	(68)	(60)	(39)
Amortisation of intangible fixed assets	12	(21)	(22)	(20)
Impairment of tangible fixed assets	13	0	(1)	(2)
Impairment of goodwill and other intangible fixed assets	12	(62)		
Total operating costs		**(548)**	**(553)**	**(525)**
Operating result	2	**(76)**	**44**	**53**
Finance income	8	0	0	0
Finance costs	8	(9)	(7)	(4)
Share in the result of associates	15	7	5	7
Pre-tax profit (loss)		**(78)**	**42**	**56**
Income taxes	9	8	(8)	(10)
Profit (loss) from continuing operations		**(70)**	**34**	**46**
Discontinued operations				
Profit (loss) from discontinued operations, after tax	10		(1)	230
Profit (loss) for the financial year		**(70)**	**33**	**276**
Attributable to shareholders of the company		**(70)**	**33**	**276**

x €1

	Notes	2020	2019	2018
Details per share				
Basic earnings (loss) per share	22	(1.59)	0.75	6.25
Diluted earnings (loss) per share	22	(1.58)	0.75	6.25
Basic earnings (loss) per share from continuing operations	22	(1.59)	0.78	1.04
Diluted profit (loss) pe op				
Di				
Sp				

	Notes	2021 R'000	Restated [1] 2020 R'000
Continuing operations			
Revenue	9	2 229 085	2 203 027
Cost of sales		(1 298 406)	(1 356 871)
Gross profit		**930 679**	**846 156**
Other income		55 282	19 379
Selling and distribution costs		(167 189)	(149 238)
Administrative expenses		(670 778)	(569 996)
Net impairment loss on financial assets		(22 203)	(14 264)
Other operating expenses		(212 593)	(339 041)
Once off costs [2]		(274 293)	(226 579)
Net impairment loss on assets		(89 365)	(462 705)
Operating loss	10	**(450 460)**	**(896 288)**
Finance income	11	4 824	4 017
Finance costs	11	(1 085 139)	(792 341)
Loss before taxation		**(1 530 775)**	**(1 684 612)**
Tax (expense)/credit	12	(85 350)	122 947
Loss from continuing operations		**(1 616 125)**	**(1 561 665)**
Profit from discontinuing operations	5	561 158	546 600
Loss for the period		**(1 054 967)**	**(1 015 065)**
Loss attributable to:			
Owners of the parent		(1 090 804)	(965 808)
Continuing operations		(1 651 962)	(1 512 408)
Discontinued operations		561 158	546 600
Non-controlling interest	30	35 837	(49 257)
		(1 054 967)	**(1 015 065)**
Loss per share from continuing operations			
Basic and diluted loss per share (cents)	8	(343.1)	(316.7)
Total loss per share			
Basic and diluted loss per share (cents)	8	(226.5)	(202.3)

[1] The comparatives have been restated for the change in discontinued operations, correction of the deferred tax prior period error and the trade payables prior period error. Refer to the restatement section as part of the accounting policies for further details.

[2] Once off costs have been presented seperately because these costs are considered material to the users of the financial statements. The comparative has been restated to ensure consistency of presentation.

Rachunek zysków i strat (wariant porównawczy)	Rachunek zysków i strat (wariant kalkulacyjny)
Przychody netto ze sprzedaży i zrównane z nimi, w tym: I. Przychody netto ze sprzedaży produktów II. Zmiana stanu produktów (zwiększenie – wartość dodatnia, zmniejszenie – wartość ujemna) III. Koszt wytworzenia produktów na własne potrzeby jednostki IV. Przychody netto ze sprzedaży towarów i materiałów	Przychody netto ze sprzedaży produktów, towarów i materiałów, w tym: I. Przychody netto ze sprzedaży produktów II. Przychody netto ze sprzedaży towarów i materiałów
Koszty działalności operacyjnej I. Amortyzacja II. Zużycie materiałów i energii III. Usługi obce IV. Podatki i opłaty, w tym: – podatek akcyzowy V. Wynagrodzenia VI. Ubezpieczenia społeczne i inne świadczenia VII. Pozostałe koszty rodzajowe VIII. Wartość sprzedanych towarów i materiałów	Koszty sprzedanych produktów, towarów i materiałów, w tym: I. Koszt wytworzenia sprzedanych produktów II. Wartość sprzedanych towarów i materiałów Zysk (strata) brutto ze sprzedaży (A–B) Koszty sprzedaży Koszty ogólnego zarządu
Zysk (strata) ze sprzedaży (C–D–E)	
Pozostałe przychody operacyjne	
Pozostałe koszty operacyjne	
Zysk (strata) z działalności operacyjnej (F+G–H)	
Przychody finansowe	
Koszty finansowe	
Zysk (strata) z działalności gospodarczej (I+J–K)	
Wynik zdarzeń nadzwyczajnych (M.I.–M.II.)	
Zysk (strata) brutto (L+M)	
Podatek dochodowy	
zostałe obowiązkowe zmniejszenia zysku (zwiększenia straty)	
Zysk (strata) netto (N–O–P)	

Sample Products Co.
Income Statement
For the Five Months Ended May 31, 2016

Sales		$100,000
Cost of goods sold		75,000
Gross Profit		25,000
Operating expenses		
Selling expenses		
Advertising expense	2,000	
Commissions expense	5,000	7,000
Administrative expenses		
Office supplies expense	3,500	
Office equipment expense	2,500	6,000
Total operating expenses		13,000
Operating income		12,000
Non-Operating or other		
Interest revenues		5,000
Gain on sale of investments		3,000
Interest expense		(500)
Loss from lawsuit		(1,500)
Total non-operating		6,000
Income from continuing operations		$ 18,000
Income from discontinued operations		3,000
Net Income		$ 21,000

COLGATE-PALMOLIVE COMPANY
Consolidated Statements of Income
For the years ended December 31,
(Dollars in Millions Except Per Share Amounts)

	2020		
Net sales	$ 16,471		
Cost of sales	6,454		
Gross profit	10,017	9,325	9,231
Selling, general and administrative expenses	6,019	5,575	5,389
Other (income) expense, net	113	196	148
Operating profit	3,885	3,554	3,694
Non-service related postretirement costs	74	108	87
Interest (income) expense, net	164	145	143
Income before income taxes	3,647	3,301	3,464
Provision for income taxes	787	774	906
Net income including noncontrolling interests	2,860	2,527	2,558
Less: Net income attributable to noncontrolling interests	165	160	158
Net income attributable to Colgate-Palmolive Company	$ 2,695	$ 2,367	$ 2,400
Earnings per common share, basic	$ 3.15	$ 2.76	$ 2.76
Earnings per common share, diluted	$ 3.14	$ 2.75	$ 2.75

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understanding **Income Statements**

SALES (*sprzedaż*) are the proceeds a company generates from selling goods or services to its customers:

- **component of a company's revenue figure** typically referred to as **gross sales**
- **NET SALES**, which is the result of subtracting any returned merchandise from gross sales. Retail companies tend to report net sales as well as revenue.

REVENUE (*przychód*) is the total income that includes both sales and income from supplementary sources (investment dividends, money awarded through legal processes, interests, royalties, and fees).

- "**top line**" because it appears at the top of the company's income statement

A company's **sales indicate the performance of its core business operations**, while its **revenue may be padded with one-time events like sales of property**.

SALES
NET SALES / REVENUE

COST of SALES
COSTS of GOODS SOLD (COGS)

GROSS RESULT

OPERATING EXPENCES

OPERATING RESULT / EBIT

NON-OPERATING EXPENCES

RESULT BEFORE TAX / EBT

TAX (CIT)

NET RESULT

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understanding **Income Statements**

COST OF SALES (also known as cost of revenue) and **COST OF GOODS SOLD** (COGS) both track how much it costs to produce a good or service. These costs include direct labor, direct materials such as raw materials, and the overhead that's **directly tied** to a production facility or manufacturing plant.

Retailers typically use cost of sales on their balance sheets. **Manufacturers use cost of goods sold**. Because service-only businesses cannot directly tie operating expenses to something tangible, they cannot list any cost of goods sold on their income statements. Instead, **service-only companies list cost of sales or cost of revenue**. Examples of these types of businesses include attorneys, business consultants and doctors.

Some service providers offer secondary products to customers. Airlines offer food and beverages to passengers, and hotels sell souvenirs. The costs associated with these items can also be listed as cost of goods sold.

GROSS RESULT helps a company assess the **profitability of its manufacturing activities**, while net profit margin helps the company assess its overall profitability.

SALES
NET SALES / REVENUE

COST of SALES
COSTS of GOODS SOLD (**COGS**)

GROSS RESULT

OPERATING EXPENCES

OPERATING RESULT / EBIT

NON-OPERATING EXPENCES

RESULT BEFORE TAX / EBT

TAX (CIT)

NET RESULT

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understanding **Income Statements**

OPERATING EXPENCES (OPEX) are the expenses a business incurs through its normal business operations. OPEX are not included in cost of goods sold (COGS) but consist of the direct costs involved in the production of a company's goods and services.

Selling, general, and administrative expenses (SG&A) also consist of a company's operating expenses that are not included in the direct costs of production or cost of goods sold. In other words, SG&A includes all non-production costs. While this is typically synonymous with operating expenses, many times companies list SG&A as a separate line item on the income statement below cost of goods sold, under expenses.

OPERATING RESULT (earnings before interest & taxes / EBIT) shows the proportion of revenues that are available to cover non-operating costs, such as paying interest.

Highly variable operating margins are a prime indicator of business risk.

- **SALES**
  NET SALES / REVENUE
- COST of SALES
  COSTS of GOODS SOLD (**COGS**)
- **GROSS RESULT**
- OPERATING EXPENCES
- **OPERATING RESULT / EBIT**
- NON-OPERATING EXPENCES
- RESULT BEFORE TAX / EBT
- TAX (CIT)
- NET RESULT

understanding **Income Statements**

DEPRECIATION (*amortyzacja*) refers to an accounting method used to **allocate the cost of a tangible or physical asset over its useful life** or life expectancy. Depreciation represents how much of an asset's value has been used.

The carrying value of an asset on the balance sheet is its historical cost minus all accumulated depreciation.

AMORTIZATION (*umorzenie*) is an accounting technique used to periodically **lower the book value** of a loan or an intangible asset over a set period of time. Concerning a loan, amortization focuses on spreading out loan payments over time. **When applied to an asset, amortization is similar to depreciation**.

Amortyzacja *to w prawie bilansowym i podatkowym oznacza koszt związany ze stopniowym zużywaniem się środków trwałych oraz wartości niematerialnych i prawnych.* ***Amortyzacja jest kosztem, który nie wiąże się z wypływem środków pieniężnych****. Z amortyzacją łączy się pojęcie umorzenia.*

Umorzenie *to wyrażone wartościowo zużycie środka trwałego (wartości niematerialnej i prawnej) od początku jego używania.* ***Umorzenie, to inaczej zakumulowana (zsumowana) dotychczasowa amortyzacja****.*

SALES
NET SALES / REVENUE

COST of SALES
COSTS of GOODS SOLD (**COGS**)

GROSS RESULT

OPERATING EXPENCES

OPERATING RESULT / EBIT

NON-OPERATING EXPENCES

RESULT BEFORE TAX / EBT

TAX (CIT)

NET RESULT

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understanding **Income Statements**

NON-OPERATING EXPENCES are the expense incurred by a business that are unrelated to the business's core operations.

These **types of expenses** include monthly charges like interest payments on debt and can also include one-time or unusual costs. For example, a company may categorize any costs incurred from restructuring, reorganizing, interest charges, costs from currency exchange, or charges on obsolete inventory as non-operating expenses.

After operating profit has been derived, non-operating expenses are subtracted from operating profit to arrive at **earnings before taxes (EBT)**. Taxes are then calculated to derive net income.

SALES
NET SALES / REVENUE

COST of SALES
COSTS of GOODS SOLD (**COGS**)

GROSS RESULT

OPERATING EXPENCES

OPERATING RESULT / EBIT

NON-OPERATING EXPENCES

RESULT BEFORE TAX / EBT

TAX (CIT)

NET RESULT

understanding **Income Statements**

NET INCOME is the **result of a number of calculations, beginning with revenue and encompassing all expenses** (manufacture of products, operating expenses, interest paid on loans or accrued from investments, additional income streams from subsidiary holdings or the sale of assets, depreciation and amortization of assets, taxes, and even one-time payments for unusual events) and income streams for a given period.

While net income is synonymous with a specific figure, **PROFIT** conversely can refer to several figures. Profit simply **means revenue that remains after expenses calculated at a number of levels**.

For example, gross profit is revenue less a specific type of expense: the cost of goods sold (COGS). Gross profit is also called gross margin or gross income. Operating profit refers to revenue minus the COGS and operating expenses.

Calculating profit at different stages allows companies to see which expenses take the biggest bite out of the bottom line.

SALES
NET SALES / REVENUE

COST of SALES
COSTS of GOODS SOLD (**COGS**)

GROSS RESULT

OPERATING EXPENCES

OPERATING RESULT / EBIT

NON-OPERATING EXPENCES

RESULT BEFORE TAX / EBT

TAX (CIT)

NET RESULT

understanding **Income Statements**

EBIT vs. EBITDA and EBT

EBIT (earnings before interest and taxes) is a company's net income before income tax expense and interest expense have been deducted. EBIT is used to analyze the performance of a company's core operations without tax expenses and the costs of the capital structure influencing profit.

EBT (earnings before tax) reflects how much of an operating profit has been realized before accounting for taxes, while EBIT excludes both taxes and interest payments. EBT is calculated by taking net income and adding taxes back in to calculate a company's profit. By removing tax liabilities, investors can use EBT to evaluate a firm's operating performance after eliminating a variable outside of its control.

EBITDA (earnings before interest, taxes, depreciation, and amortization) is a measure of a company's overall financial performance and is used as an alternative to net income in some circumstances.

Cash Flow analysis

- Cash flow refers to the **net amount of cash and cash equivalents being transferred in and out of a company**. Cash received represents inflows, while money spent represents outflows.

- A company's **ability to create value for shareholders is fundamentally determined by its ability to generate positive cash flows** or, more specifically, to maximize long-term free cash flow (FCF).

- **FCF is the cash generated by a company from its normal business operations after subtracting any money spent on capital expenditures (CAPEX)**.

Cash Flow analysis

- **CASH vs. REVENUES**: Revenues refer to the income earned from selling goods and services. If an item is sold on credit or via a subscription payment plan, money may not yet be received from those sales and are booked as accounts receivable. But these do not represent actual cash flows into the company at the time.
- Cash flow statement acts as a „corporate checkbook" that **reconciles balance sheet and income statement**
- The **indirect method** is one of two accounting treatments used to generate a cash flow statement. The other option for completing a cash flow statement is the **direct method**, which lists actual cash inflows and outflows made during the reporting period.
- The indirect method uses increases and decreases in balance sheet line items to modify the operating section of the cash flow statement from the accrual method to the cash method of accounting. The indirect method is more commonly used in practice, especially among larger firms.

COLGATE-PALMOLIVE COMPANY

Consolidated Statements of Cash Flows

For the years ended December 31,

(Dollars in Millions)

	2020	2019	2018
Operating Activities			
Net income including noncontrolling interests	$ **2,860**	$ 2,527	$ 2,558
Adjustments to reconcile net income including noncontrolling interests to net cash provided by operations:			
Depreciation and amortization	**539**	519	511
Restructuring and termination benefits, net of cash	**(71)**	18	(7)
Stock-based compensation expense	**107**	100	109
Loss on early extinguishment of debt	**23**	—	—
Charge for U.S. tax reform	—	—	80
Deferred income taxes	**(120)**	17	27
Voluntary benefit plan contributions	—	(113)	(67)
Cash effects of changes in:			
Receivables	**138**	19	(79)
Inventories	**(251)**	(77)	(58)
Accounts payable and other accruals	**520**	36	18
Other non-current assets and liabilities	**(26)**	87	(36)
Net cash provided by operations	**3,719**	3,133	3,056
Investing Activities			
Capital expenditures	**(410)**	(335)	(436)
Purchases of marketable securities and investments	**(143)**	(184)	(169)
Proceeds from sale of marketable securities and investments	**124**	131	156
Payment for acquisitions, net of cash acquired	**(353)**	(1,711)	(728)
Other	**3**	—	7
Net cash used in investing activities	**(779)**	(2,099)	(1,170)
Financing Activities			
Short-term borrowing/(repayment) less than 90 days - net	**497**	294	546
Principal payments on debt [1]	**(1,061)**	(1,441)	(725)
Proceeds from issuance of debt	—	2,595	—
Dividends paid	**(1,654)**	(1,614)	(1,591)
Purchases of treasury shares	**(1,476)**	(1,202)	(1,238)
Proceeds from exercise of stock options	**874**	498	329
Purchases of non-controlling interests in subsidiaries	**(99)**	—	—
Net cash used in financing activities	**(2,919)**	(870)	(2,679)
Effect of exchange rate changes on Cash and cash equivalents	**(16)**	(7)	(16)
Net (decrease) increase in Cash and cash equivalents	**5**	157	(809)
Cash and cash equivalents at beginning of year	**883**	726	1,535
Cash and cash equivalents at end of year	$ **888**	$ 883	$ 726
Supplemental Cash Flow Information			
Income taxes paid	$ **845**	$ 803	$ 847
Interest paid	$ **188**	$ 185	$ 194

[1] For the year ended December 31, 2020, Principal payments on debt includes cash charges of $20 related to the extinguishment of debt prior to maturity. See Note 6, Long-Term Debt and Credit Facilities for additional information.

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Cash Flow analysis

CASH FLOW FROM OPERATIONS (CFO) or operating cash flow, describes money flows involved directly with the production and sale of goods from ordinary operations. **CFO indicates whether or not a company has enough funds coming in to pay its bills or operating expenses**.

Operating cash flow is calculated by taking **cash received from sales and subtracting operating expenses** that were paid in cash for the period. Operating cash flow indicates whether a company can generate enough cash flow to maintain and expand operations, but it can also indicate when a company may need external financing for capital expansion.

Note that CFO is useful in segregating sales from cash received. If, for example, a company generated a large sale from a client it would boost revenue and earnings. However, the additional revenue doesn't necessarily improve cash flow if there is difficulty collecting the payment from the customer.

CASH FLOW from OPERATIONS

CASH FLOW from INVESTING

CASH FLOW from FINANCING

NET CASH

CASH at the beginning

CASH at the end

Cash Flow analysis

CASH FLOW FROM INVESTING (CFI) or investing cash flow reports how much cash has been generated or spent from various investment-related activities in a specific period.

Investing activities include purchases of speculative assets, investments in securities, sale of securities or assets, investments in property, plant, and equipment (PP&E) and acquisitions of other businesses.

Negative cash flow from investing activities might be due to significant amounts of cash being invested in the long-term health of the company, such as research and development (R&D) and is not always a warning sign.

CASH FLOW from OPERATIONS

CASH FLOW from INVESTING

CASH FLOW from FINANCING

NET CASH

CASH at the beginning

CASH at the end

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Cash Flow analysis

CASH FLOW FROM FINANCING (CFF) or financing cash flow, shows the net flows of cash that are used to fund the company and its capital.

Financing activities include transactions involving issuing debt, equity, and paying dividends.

Cash flow from financing activities provides investors with insight into a company's financial strength and how well a company's capital structure is managed.

CASH FLOW from OPERATIONS

CASH FLOW from INVESTING

CASH FLOW from FINANCING

NET CASH

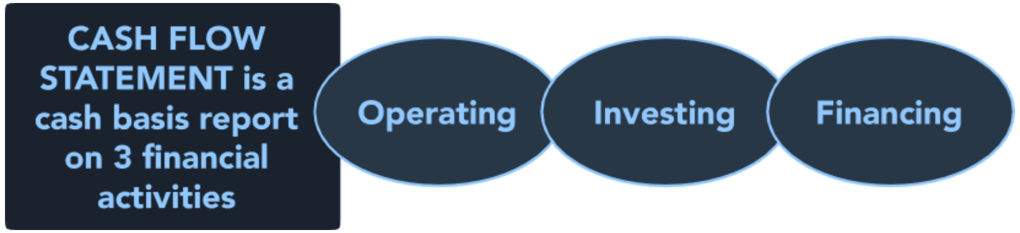
CASH at the beginning

CASH at the end

Cash Flow analysis

The final line in the cash flow statement, "cash and cash equivalents at end of year," is the same as "cash and cash equivalents," the line under current assets in the balance sheet.

The first number in the cash flow statement, "consolidated net income," is the same as the bottom line, "income from continuing operations" on the income statement.



CASH FLOW from OPERATIONS

CASH FLOW from INVESTING

CASH FLOW from FINANCING

NET CASH

CASH at the beginning

CASH at the end

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assessing **Financial Performance**

- Financial performance is a **subjective measure of how well a firm can use assets from its primary mode of business and generate revenues**. The term is also used as a general measure of a firm's overall financial health over a given period.
- Credit managers use financial performance to **compare similar firms** across the same industry or to compare industries or sectors in aggregate.
- There are many ways to measure financial performance, but **all measures should be taken in aggregate**.
- Financial analysis is the use of financial statements to analyse a company's financial position and performance, and to **assess future financial performance**.

assessing **Financial Performance**

Credit management operates within **three main tools designed to analyse financial statements**:

- **Comparative** financial statement analysis (**trend** – **horizontal** analysis)
- **Common-size** financial statement analysis (**proportionate changes** in accounts within groups of assets – **vertical** analysis)
- **Ratio** analysis (not relevant in isolation: they are usefully interpreted in **comparison** with (1) prior ratios, (2) predetermined standards, and (3) ratios of competitors)

When using key financial ratios, you need to be sure that you are **comparing like with like**

You need to appreciate how operational **differences within each industry or region can impact the validity of any comparisons**

assessing **Financial Performance**

Analysing the changes in the assets of the company against the background of other economic categories, including income and financial results, it is possible to conclude about the **effectiveness of wealth management**.

The desired direction of dependence can be presented as:

$$\mathbf{\Delta E < \Delta A < \Delta R < \Delta P}$$

where: **ΔE** - employment dynamics, **ΔA** - asset dynamics, **ΔR** - revenue dynamics, **ΔP** - profit dynamics

assessing **Financial Performance**

- The four main areas of financial health that should be examined are profitability, liquidity, solvency and operating efficiency.

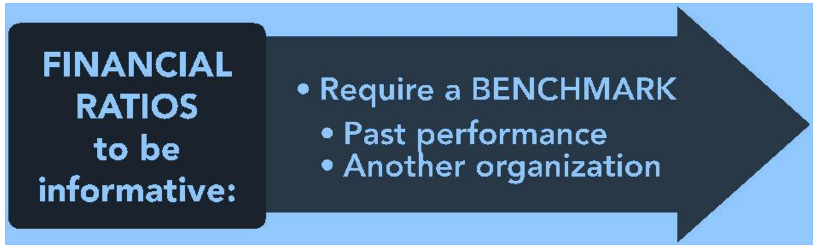
- Key financial ratios allow comparisons between:
  1) Organizations in the **same industry sector**
  2) **Different time periods** for the same organization
  3) An organization and its **industry average**

PROFITABILITY

LIQUIDITY

SOLVENCY

EFFICIENCY



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assessing **Financial Performance**

PROFITABILITY – is closely related to profit – but with one key difference. While profit is an absolute amount, profitability is a relative one. It is the metric used to determine the scope of a **company's profit in relation to the size of the business**. Profitability is a measurement of efficiency – and ultimately its success or failure.

For most profitability ratios, having a higher value relative to a competitor's ratio or relative to the same ratio from a previous period indicates that the company is doing well. Profitability ratios are most **useful when compared to similar companies, the company's own history, or average ratios for the company's industry**.

$$\textbf{Gross Profit Margin} = \frac{Sales - COGS}{Sales}$$

$$\textbf{Operating Profit Margin} = \frac{EBIT}{Sales}$$

$$\textbf{Net Profit Margin} = \frac{Net\ Income}{Sales}$$

$$\textbf{Return On Assets (ROA)} = \frac{Net\ Income}{Assets}$$

$$\textbf{Return On Equity (ROE)} = \frac{Net\ Income}{Equity}$$

assessing **Financial Performance**

LIQUIDITY – measures the ease with which an individual or company can meet their financial obligations with the liquid assets available to them – the ability to pay off debts as they come due.

Liquidity ratios are an important class of financial metrics used to determine a **debtor's ability to pay off current debt obligations** without raising external capital. Liquidity ratios measure a company's ability to pay debt obligations and its margin of safety through the calculation of metrics including the current ratio, quick ratio, cash ratio and operating cash flow ratio.

$$\textbf{Current Ratio} = \frac{\textit{Current Assets}}{\textit{Current Liabilities}} \qquad (1{,}5 – 2{,}0)$$

$$\textbf{Quick Ratio} = \frac{\textit{Current Assets} - \textit{Inventory}}{\textit{Current Liabilities}} \qquad (0{,}8 - 1{,}2)$$

$$\textbf{Cash Ratio} = \frac{\textit{Cash \& Cash Equivalents}}{\textit{Current Liabilities}} \qquad \text{(no benchmark)}$$

$$\textbf{Operating Cash Flow Ratio} = \frac{\textit{Operating Cash Flow}}{\textit{Current Liabilities}} \qquad \text{(no benchmark)}$$

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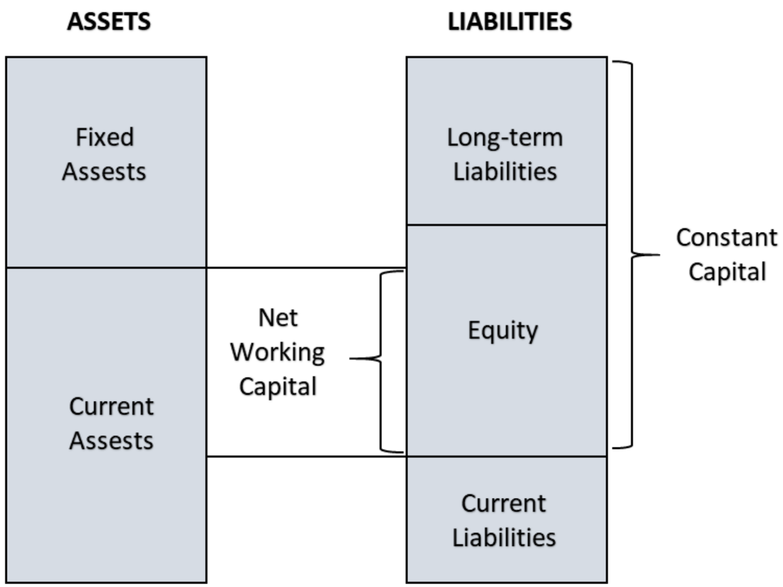
WORKING CAPITAL = Current Assets – Current Liabilities

Working capital, also known as **net working capital (NWC)**, is the difference between a company's current assets and its current liabilities, such as accounts payable and debts.

- Positive NWC indicates that a company can fund its current operations and invest in future activities and growth.
- NWC that is in line with or higher than the industry average for a company of comparable size is generally considered acceptable. Low NWC may indicate a risk of distress or default.



WORKING CAPITAL REQUIREMENT (WCR) = Inventory + Accounts Receivable – Accounts Payable

- WCR is a financial metric showing the number of financial resources needed to cover the costs of the production cycle, upcoming operational expenses and the repayments of debts.
- In other words, it shows you the amount of money needed to finance the gap between payments to suppliers and payments from customers.

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SOLVENCY – is the ability of a company to meet its long-term debts and financial obligations. Solvency can be an important measure of financial health, since its one way of demonstrating a company's ability to manage its operations into the foreseeable future.

A solvency ratio indicates **whether a company's cash flow is sufficient to meet its long-term liabilities** and thus is a measure of its financial health. An unfavorable ratio can indicate some likelihood that a company will default on its debt obligations.

Debt to Equity$= \frac{Liabilities}{Equity}$

Debt to Assets $= \frac{Liabilities}{Assets}$

Equity to Assets $= \frac{Equity}{Assets}$

Short-term Debt to Equity$= \frac{Short-term\ Liabilities}{Equity}$

Long-term Debt to Equity$= \frac{Long-term\ Liabilities}{Equity}$

Interest Coverage Ratio $= \frac{EBIT}{Interest\ Expence}$

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assessing **Financial Performance**

Optimal Relationship Between Debt and Equity?
Unfortunately, there is no magic ratio of debt to equity to use as guidance. What defines a healthy blend of debt and equity varies according to the industries involved, line of business, and a firm's stage of development.

LEVERAGE (*dźwignia*): The assumption is that management can earn more on borrowed funds than what it would pay in interest expense and fees on these funds.

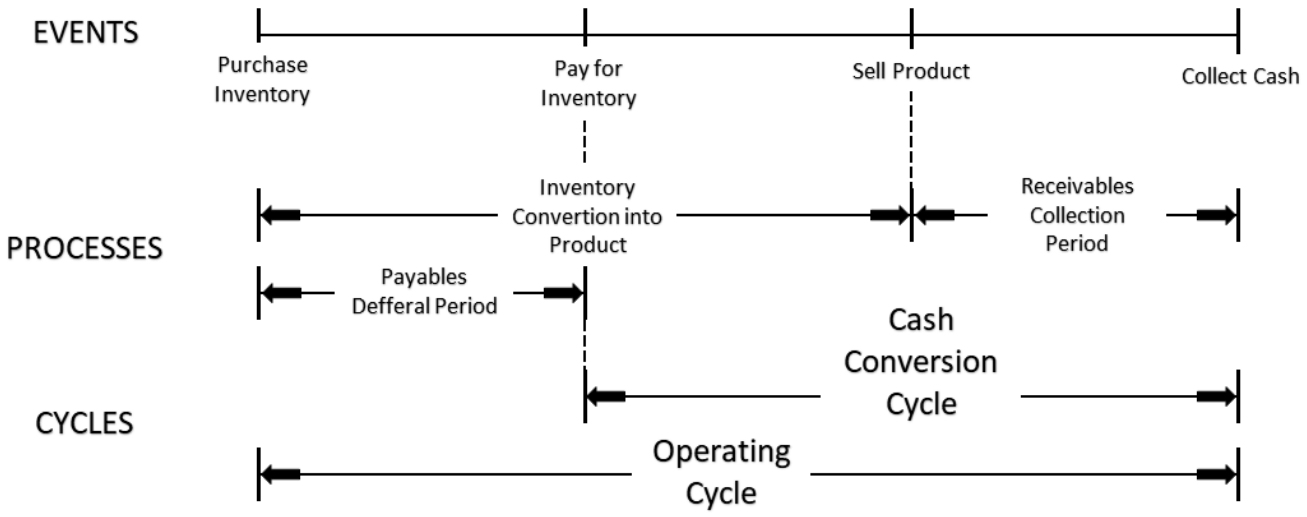
DEBT (*zadłużenie*): However, to carry a large amount of debt successfully, a company must maintain a solid record of complying with its various borrowing commitments.

A company that is too highly leveraged (too much debt relative to equity) might find that eventually, its creditors restrict its freedom of action; or it **could experience diminished profitability as a result of paying steep interest costs**. In addition, a firm could have trouble meeting its operating and debt liabilities during periods of adverse economic conditions.

assessing **Financial Performance**

Cash Conversion Cycle (CCC) is a metric that expresses the time (measured in days) it takes for a company to **convert its investments in inventory and other resources into cash flows from sales**. Also called the Net Operating Cycle or simply Cash Cycle, CCC attempts to measure how long each net input cash is tied up in the production and sales process before it gets converted into cash received.

This metric takes into account how much time the company needs to sell its inventory (**DIO**), how much time it takes to collect receivables (**DSO**), and how much time it has to pay its bills (**DPO**).



assessing **Financial Performance**

CCC is one of several quantitative measures that **help evaluate the efficiency of a company's operations and management**. A trend of decreasing or steady CCC values over multiple periods is a good sign while rising ones should lead to more investigation and analysis based on other factors.

In addition to other financial measures, the **CCC value indicates how efficiently a company's management is using the short-term assets and liabilities to generate and redeploy the cash** and gives a peek into the company's financial health with respect to cash management. The figure also **helps assess the liquidity risk linked to a company's operations**.

$$\mathbf{CCC = DIO + DSO - DPO}$$

$$\textbf{DIO (Days of Inventory Outstanding)} = \frac{\text{average Inventory}}{\text{Cost of Goods Sold}} \times 365$$

$$\textbf{DSO (Days Sales Outstanding)} = \frac{\text{average Accounts Receivable}}{\text{(credit) Sales}} \times 365$$

$$\textbf{DPO (Days Payables Outstanding)} = \frac{\text{average Accounts Payable}}{\text{Cost of Goods Sold}} \times 365$$

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Quantitative factors – first but not most important

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CREDITWORTHINESS MODELLING

I. Discriminant models and simple scoring cards – examples of use

II. Models based on the Altman Z-score

III. Credit scoring models and credit scorecards

IV. Learning from the best – credit rating agencies

V. Customers' portfolio – approach for better efficiency

DISCRIMINANT MODELS

Linear discriminant analysis is a special case of **linear regression**, where the **dependent variable** (explained) is a qualitative variable (good or bad financial condition of an enterprise).

Independent variables (explanatory, discriminatory) are the indicators characterizing the economic standing of the enterprise.

$$\mathbf{LFD = \lambda_0 + \lambda^T * x}$$

where:

LFD – linear discriminatory function

x – is a feature vector

λ_0 and λ^T – are the coefficients of the discriminative function

$$\mathbf{LFD = a_0 + a_1X_1 + a_2X_2 + \ldots + a_kX_k}$$

where:

a_i – discriminative coefficients (i = 1, 2, ..., k)

a_0 – constant

X_i – explanatory variables (i = 1, 2, ..., k)

DISCRIMINANT MODELS

Famous example of an discriminant model is the Altman z-score model for large firms:

Z = 0.012*X1 + 0.014*X2 + 0.033*X3 + 0.006*X4 + 0.999*X5

Z > 2.99 -“Safe” Zone
1.81 =< Z =< 2.99 -“Grey” Zone
Z < 1.81 -“Distress” Zone

X1 = working capital/total assets
X2 = retained earnings/total assets
X3 = earnings before interest and taxes/total assets
X4 = market value equity/book value of total liabilities
X5 = sales/total assets

- parameters 0.012, 0.014, 0.033, 0.006 and 0.999 were determined to separate bankrupt from non-bankrupt data on a training set of 68 firms; accuracy rate is 95%
- most scoring systems are variants of such empirical models
- Altman z-score does not work for new companies as their low earnings render a low score
- Altman z-score does not directly account for cash flow; a company may have a high z-score, but be unable to pay its bills

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DISCRIMINANT MODELS

- Original model developed only for public companies with assets >$1M and further developed into:

Z = 1.200*X1 + 1.400*X2 + 3.300*X3 + 0.600*X4 + 0.999*X5

Z > 2.99 -"Safe" Zone
1.81 =< Z =< 2.99 -"Grey" Zone
Z < 1.81 -"Distress" Zone

X1 = working capital/total assets
X2 = retained earnings/total assets
X3 = earnings before interest and taxes/total assets
X4 = market value equity/book value of total liabilities
X5 = sales/total assets

Z' = 0.717*X1 + 0.847*X2 + 3.107*X3 + 0.420*X4 + 0.998*X5

private firms

Z > 2.90 -"Safe" Zone
1.23 =< Z =< 2.90 -"Grey" Zone
Z < 1.23 -"Distress" Zone

X1 = working capital/total assets
X2 = retained earnings/total assets
X3 = earnings before interest and taxes/total assets
X4 = book value equity/book value of total liabilities
X5 = sales/total assets

Z" = 6.560*X1 + 3.260*X2 + 6.720*X3 + 1.050*X4

non-manufacturers
& emerging markets

Z > 2.60 -"Safe" Zone
1.10 =< Z =< 2.60 -"Grey" Zone
Z < 1.10 -"Distress" Zone

X1 = working capital/total assets
X2 = retained earnings/total assets
X3 = earnings before interest and taxes/total assets
X4 = market value equity/book value of total liabilities
~~X5 = sales/total assets~~

DISCRIMINANT MODELS – OTHERS

SPRINGATE (CANADIAN - 1978)

Z = 1.030*A + 3.070*B + 0.660*C + 0.400*D

- model achieved an accuracy rate of 92.5%
- Z < 0.862 is a "Distress" Zone

A = Working Capital/Total Assets
B = Net Profit before Interest and Taxes/Total Assets
C = Net Profit before Taxes/Current Liabilities
D = Sales/Total Assets

FULMER MODEL (U.S. - 1984)

H = 5.528*V1 + 0.212*V2 + 0.073*V3+ 1.270*V4

0.120*V5 + 2.335*V6 + 0.575*V7 + 1.083*V8

+ 0.894*V9 - 6.075

- 98% accuracy rate, H < 0 is a "Distress" Zone

V1 = Retained Earning/Total Assets
V2 = Sales/Total Assets
V3 = EBT/Equity
V4 = Cash Flow/Total Debt
V5 = Debt/Total Assets
V6 = Current Liabilities/Total Assets
V7 = Log Tangible Total Assets
V8 = Working Capital/Total Debt
V9 = Log EBIT/Interest

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Discriminant models – example

	Synthos 2012	Synthos 2013	Synthos 2014	Synthos 2015
Altman				
Z	5,06	3,51	2,89	2,72
Z'	3,56	2,45	2,00	1,87
Z"	9,44	6,09	6,00	6,00
Gajdka & Stos (1996)	0,53	0,49	0,47	0,53
Gajdka & Stos (2003)	1,23	0,93	0,74	0,78
Hołda	4,26	3,24	3,99	4,93
poznański	3,69	2,19	3,63	5,78
Mączyńska	3,32	2,67	2,18	2,33
Prusak (P1)	1,58	0,64	1,58	2,41
Prusak (P2)	0,60	-0,03	0,08	0,41
Wierzba	1,80	1,17	1,13	1,08
Hadasik	1,50	1,26	0,89	0,54
Springate	1,79	1,33	1,49	1,68
Fulmer	3,45	2,80	3,00	2,26

	LanXess 2012	LanXess 2013	LanXess 2014	LanXess 2015
Altman				
Z	2,07	1,51	1,64	1,79
Z'	1,51	1,02	1,14	1,28
Z"	3,25	2,73	2,67	2,72
Gajdka & Stos (1996)	0,28	0,16	0,23	0,29
Gajdka & Stos (2003)	0,51	0,05	0,20	0,30
Hołda	2,56	1,44	1,53	1,73
poznański	1,59	1,97	1,39	1,11
Mączyńska	2,31	0,52	1,01	1,45
Prusak (P1)	0,64	0,02	0,16	0,12
Prusak (P2)	-0,27	-0,55	-0,57	-0,57
Wierzba	0,85	0,03	0,34	0,47
Hadasik	0,84	0,95	0,88	0,87
Springate	1,29	0,60	0,78	0,87
Fulmer	0,04		-1,09	-0,51

	Trinseo 2012	Trinseo 2013	Trinseo 2014	Trinseo 2015
Altman				
Z	1,87	1,94	1,82	2,00
Z'	1,32	1,36	1,27	1,47
Z"	2,48	2,68	2,27	3,38
Gajdka & Stos (1996)	-0,13	-0,13	-0,16	0,06
Gajdka & Stos (2003)	0,17	0,11	0,05	0,37
Hołda	0,94	0,80	0,51	2,35
poznański	1,14	1,50	1,44	3,34
Mączyńska	0,80	0,61	0,37	1,81
Prusak (P1)	0,72	0,87	0,92	1,82
Prusak (P2)	-0,17	-0,01	0,05	0,72
Wierzba	0,65	0,61	0,50	0,97
Hadasik	0,46	0,50	0,50	0,41
Springate	1,34	1,31	1,24	1,77
Fulmer	-0,30	-1,05		-0,89

Credit scoring models

- What company do I want to trade?
- What is the risk for me to accept?
- What is most important in the list of risks?
- What is the minimum necessary in the most important criteri
- What kind of non-financial factors should I consider?
- What criteria for non-financial factors?

ANSWER: my own scoring model

Credit scoring models

- Scoring models are used in all research areas, where the researcher's task is to predict one of the two possible outcomes of the event.
- The scoring model, using the set of attributes (predictors) and the weight assigned to it, assigns the probability of the occurrence of the highlighted event (risk)
- The advantages of the models are their objectivity, universality and simplicity
- A scoring system involves assigning a certain number of points quantified to the size describing the borrower's functioning and financing. Hence the name: credit scoring

Assesment's elements (1)	Assesment scale (2)	Weight (3)	Index (4)	Illumination (3) x (4)
Financial information	1 – 10	3,0	6	18
Company profile	1 – 10	1,5	5	7,5
Payment history	1 – 10	1,0	4	4,0
Company environment	1 – 10	2,0	7	14
TOTAL				43,5

Credit scoring models

In scoring models, both measurable (quantitative) and non-measurable (qualitative) variables can be used as explanatory variables.

Scoring models could differ by:

- limit of the maximum number of points of synthetic evaluation,
- division of the total number of points between objective and subjective factors,
- the minimum number of points guaranteeing the granting of credit (cut-off point),
- choice, terminology, weight and number of points for financial indicators,
- Include or not, the legal forms of credit security to the scoring formula

Credit scoring models - benefits

- streamlining the decision-making process - automation
- reduce the subjectivity of your credit decision
- a drop in "bad" loans
- increased acceptability of applications
- Include in customer's assessment more elements than before
- accurate risk measurement
- accurate risk measurement
- the transparency of the risk management policy
- reduced operating costs
- more segmentation capability
- generation of shares adequate to the level of risk
- the starting point for introducing an internal risk management model

LEARNING FROM THE BEST – CREDIT RATING AGENCIES

Moody's

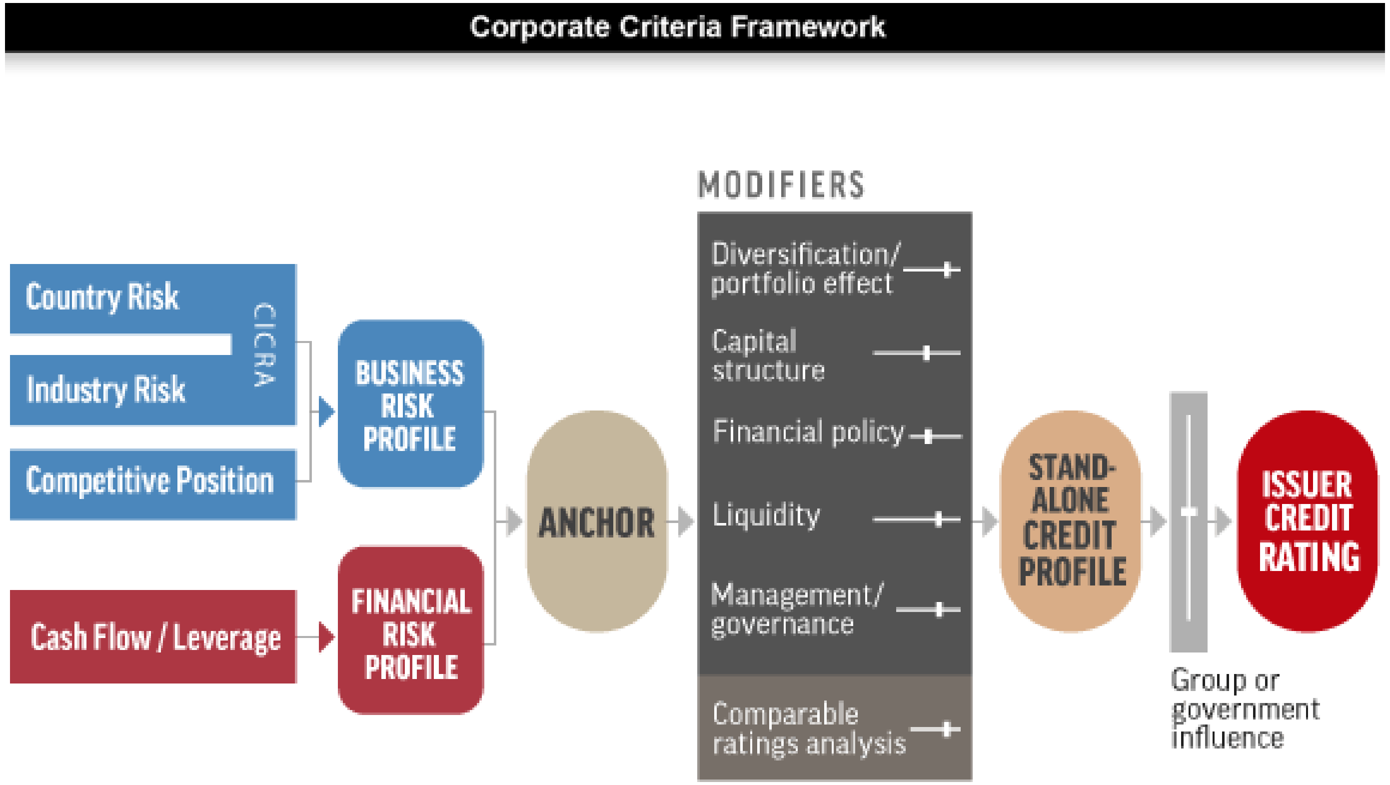
Broad Rating Factors	Factor Weighting	Rating Sub-Factors	Sub-Factor Weighting
Business Profile	20%	Business Profile	20%
Scale	20%	Revenue	20%
Profitability	10%	EBITA Margin	10%
Leverage and Coverage	40%	EBITA / Interest Expense	10%
		Debt / EBITDA	10%
		Retained Cash Flow / Net Debt	10%
		Free Cash Flow / Debt	10%
Financial Policy	10%	Financial Policy	10%
Total	**100%**	**Total**	**100%**

Factor 1: Business Profile (20%)

Sub-Factor	Sub-factor Weight	Aaa	Aa	A	Baa	Ba	B	Caa	Ca
Business profile	20%	Expected volatility in results is almost non-existent. Supported by a commanding market position, entrenched cost effectiveness, technology advantages and a well-balanced global reach.	Very low expected volatility in results. Supported by a deeply entrenched and leading market position that is highly defensible through cost effectiveness and technology leadership with global exposure.	Low expected volatility in results. Supported by a strong market position in its relevant market, demonstrated and sustainable competitive advantages, insulation from raw material cost fluctuations, and solid diversity characteristics.	Moderate expected volatility in results. Supported by a solid market position in its most important geographic or product markets. Is vertically integrated or can pass-through the majority of its costs. Good diversity characteristics provide a buffer against sudden/ unexpected shifts in demand.	Products are largely undif-ferentiated and the marketplace highly competitive, exposing company to periods of heightened volatility. Such exposure is tempered by an established market position, favorable costs, an ability to pass-through raw material costs, and fair diversity characteristics including modest operational concentration.	Products are undifferentiated , competition is intense and customers price sensitive, making results highly volatile. Company does not have advantageous cost profile or other competitive advantage to mitigate. High operational concentration.	Results are expected to be extremely volatile. Company has modest market presence, few competitive advantages and may have above-average costs. Very high operational concentration (1 or 2 locations).	Expected to have highly volatile cash flow generation, a single product line sold to few customers for a single use, an insignificant market position with many large competitors, concentrated exposure to a small cyclical market and uncertain demand, no pricing power, and a single operating site that has an uncompetitive cost structure. Permanent structural and technological disadvantages.

Learning from the best – credit rating agencies

S&P Global Ratings



Creditworthiness modeling

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QUALITATIVE FACTORS – IGNORANCE WHICH COULD COST YOU MONEY

I. Essence, meaning, scope
II. Business cycles and government interference
III. Leading economic indicators
IV. Analysis technics: PESTLE & Porter's 5 forces

Qualitative Factors - Overview

- The existing vast literature on credit risk assessment and default prediction provides models building mostly in quantitative indicators.

- The quantitative side involves looking at factors that can be measured numerically, such as the company's assets, liabilities, cash flow, revenue and price-to-earnings ratio.

- The limitation of quantitative analysis, however, is that it does not capture the company's aspects or risks unmeasurable by a number - things like the value of an executive or the risks a company faces with legal issues.

Qualitative Factors - Overview

- Although relatively more difficult to analyze, the qualitative factors are an important part of a company. Since they are not measured by a number, they more represent an either negative or positive force affecting the company.

- The significance of the qualitative criteria suggests that credit analysis is mainly judgmentally based, depending on the subjective assessment of the analysts. As such, it limits the usage of the most common statistical analysis.

- The main concern in using the qualitative factors should therefore be to establish some boundaries (credit assessment methodology) on judgmental subjectivity, focused on the research of value functions that may express a generalized point of view.

Qualitative Factors - Overview

Qualitative credit analysis refers to those characteristics that affect the probability of a lack of solvency, but **which cannot be directly represented by numbers**.

A **credit analyst cannot ignore quantitative factors** in assessing the true credibility of a business.

The qualitative component of the credit analysis is generally tested in two stages:

- **Microeconomics** (internal analysis of enterprise performance, industry analysis)
- **Macroeconomics** (geopolitics, law, macroeconomic trends)

- macroeconomic environment
- competitiveness and sectoral competition
- the risk of substitution
- bargaining power of customers and suppliers
- determinants of entrepreneurship
- the potential of business innovation
- strength of financial statements
- business sector and the perceived strength of the industry
- the nature of the borrower
- the economic strength of the borrower's location
- management competencies
- external risk (e.g. new legislation regulating the industry, etc.)
- quality of financial statements

MACROECONOMICS – ANALYSIS TECHNICS - PESTLE

P (political)	E (economic)	S (sociological)	T (technological)	L (legal)	E (environmental)
• Government policies • Governmentt term and change • Trading policies • Pressure groups • Funding grants and initiatives • Wars and conflicts	• Home economy situation and trends • Overseas economies and trends • General taxation • Taxation specific to products and services • Seasonality / weather issues • Market and trade cycles • Industry specific factors	• Lifestyle trends • demographic\ • Consumer opinions • Media views • Law changes affecting social factors • Brand, company, technology image • Consumer buying patterns • Fashion and role models • Advertising and publicity	• Competing technology development • Technological advancements • Research and development funding • Maturity of technology • Replacement technology • Consumer buying mechanism • Technology legislation	• Current legislation • Future legislation • National/international (EU) legislation • Regulatory bodies and processes	• Environmental legislation • Public awareness of environmental issues • Political agenda of the environment • Consumer buying patterns • Corporate buying patters • Corporate social responsibility awareness and expectations

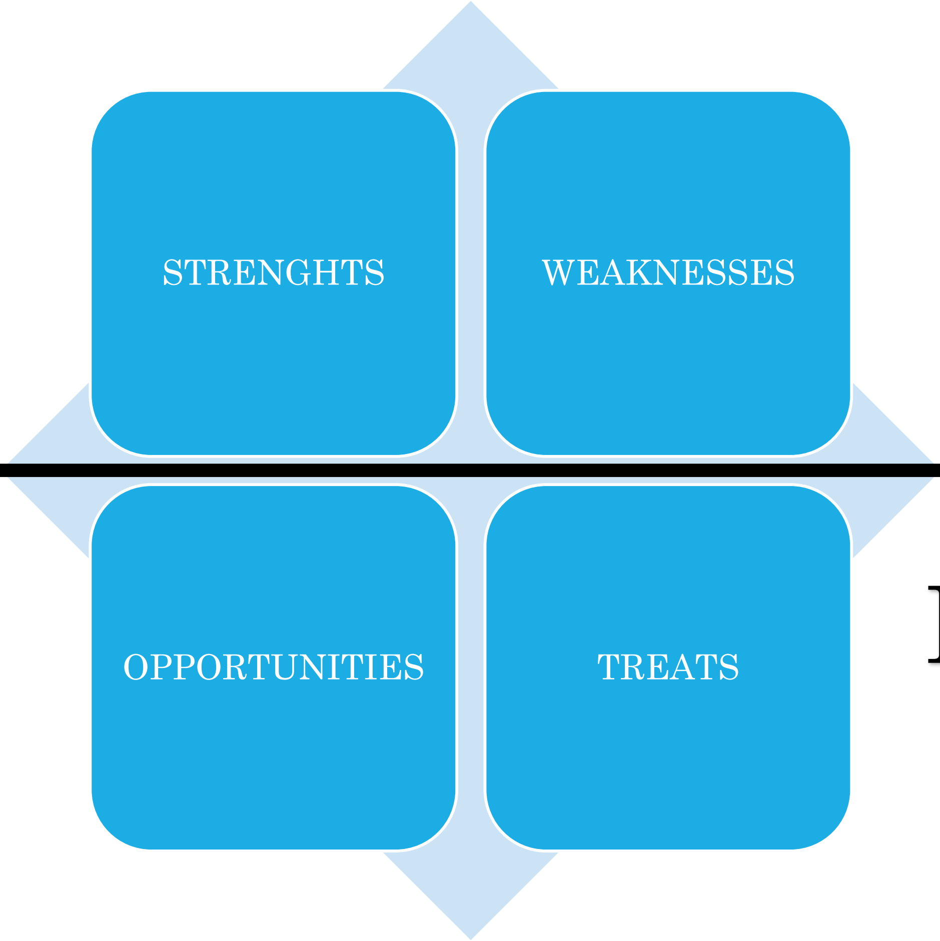
Microeconomics – Analysis Technics

While understanding the macro-environment is essential for developing the strategy, it only gives a half picture. We need to have a thorough understanding of company's micro-environment and the impact they can have on the organization. To gain this knowledge we need to conduct **Porter's Five forces Analysis** or **SWOT/TOWS Analysis**.

PESTLE – macro environment + Porter's 5 forces and SWOT/TOWS – micro environment → Technics that help you assess the qualitative factors

MICROECONOMICS – SWOT

INTERNAL



EXTERNAL

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MICROECONOMICS – PORTER'S FIVE FORCES

Porter's Five Forces model is regarded as a credible and practical alternative to the widely used SWOT Analysis.

The five key factors the model uses to identify and evaluate potential opportunities and risks are: **competitive rivalry, threat of new entrants, threat of substitutes, bargaining power of suppliers, and bargaining power of customers**.

One of the most crucial aspects of using this technique is ability to **define properly the organization's market**. Defining the market too narrowly (known as „marketing myopia”), can make it impossible to work out who the competitors are in terms of market needs and opportunities.

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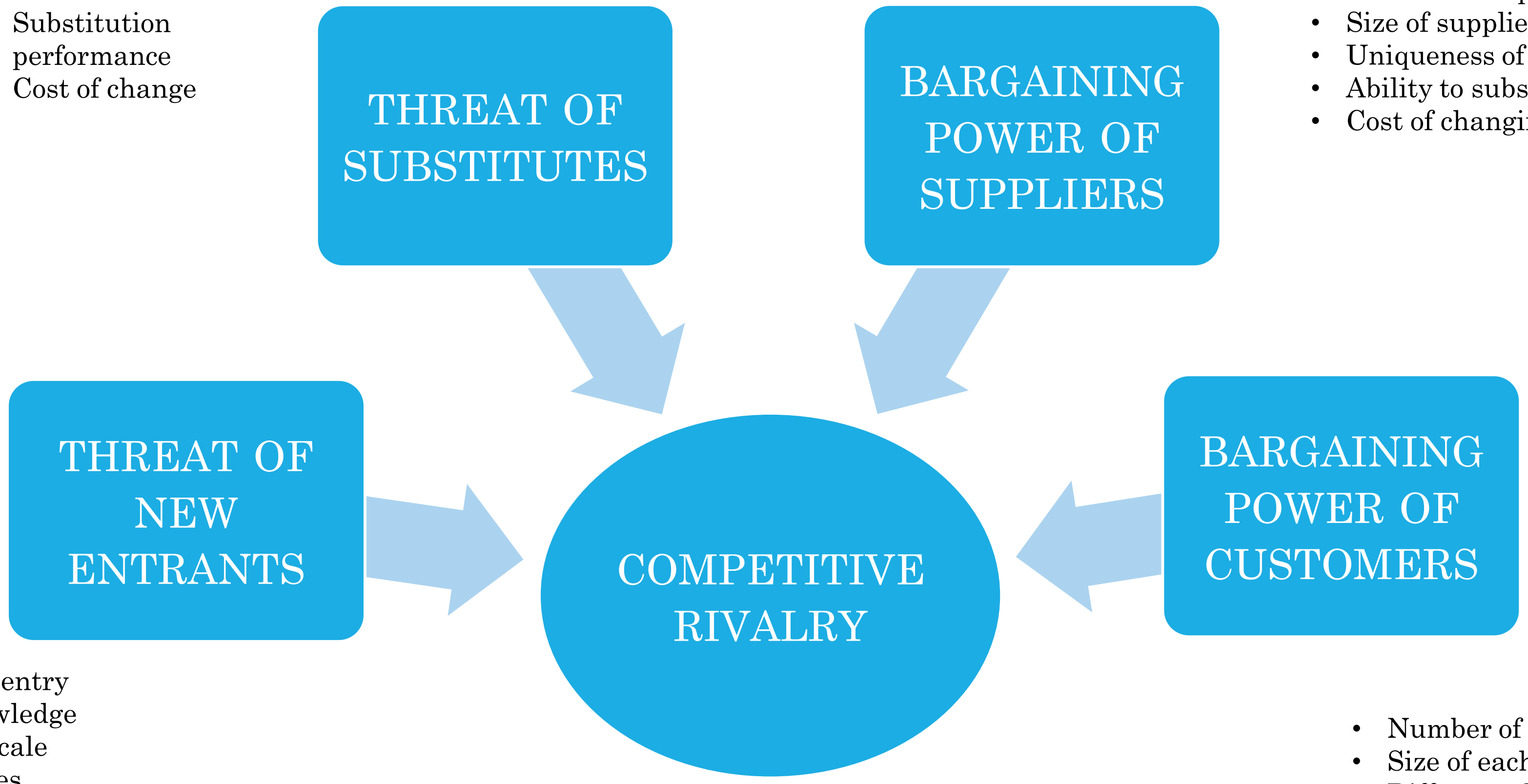
Microeconomics – Porter's Five Forces

- Substitution performance
- Cost of change

- Number of suppliers
- Size of suppliers
- Uniqueness of service
- Ability to substitute
- Cost of changing



- Time & cost of entry
- Specialist knowledge
- Economies of scale
- Cost advantages
- Technology protection
- Barriers to entry

- Number of competitors
- Quality differences
- Switching costs
- Customer loyalty

- Number of customers
- Size of each order
- Difference between competitors
- Price sensitivity
- Ability to substitute
- Cost of changing

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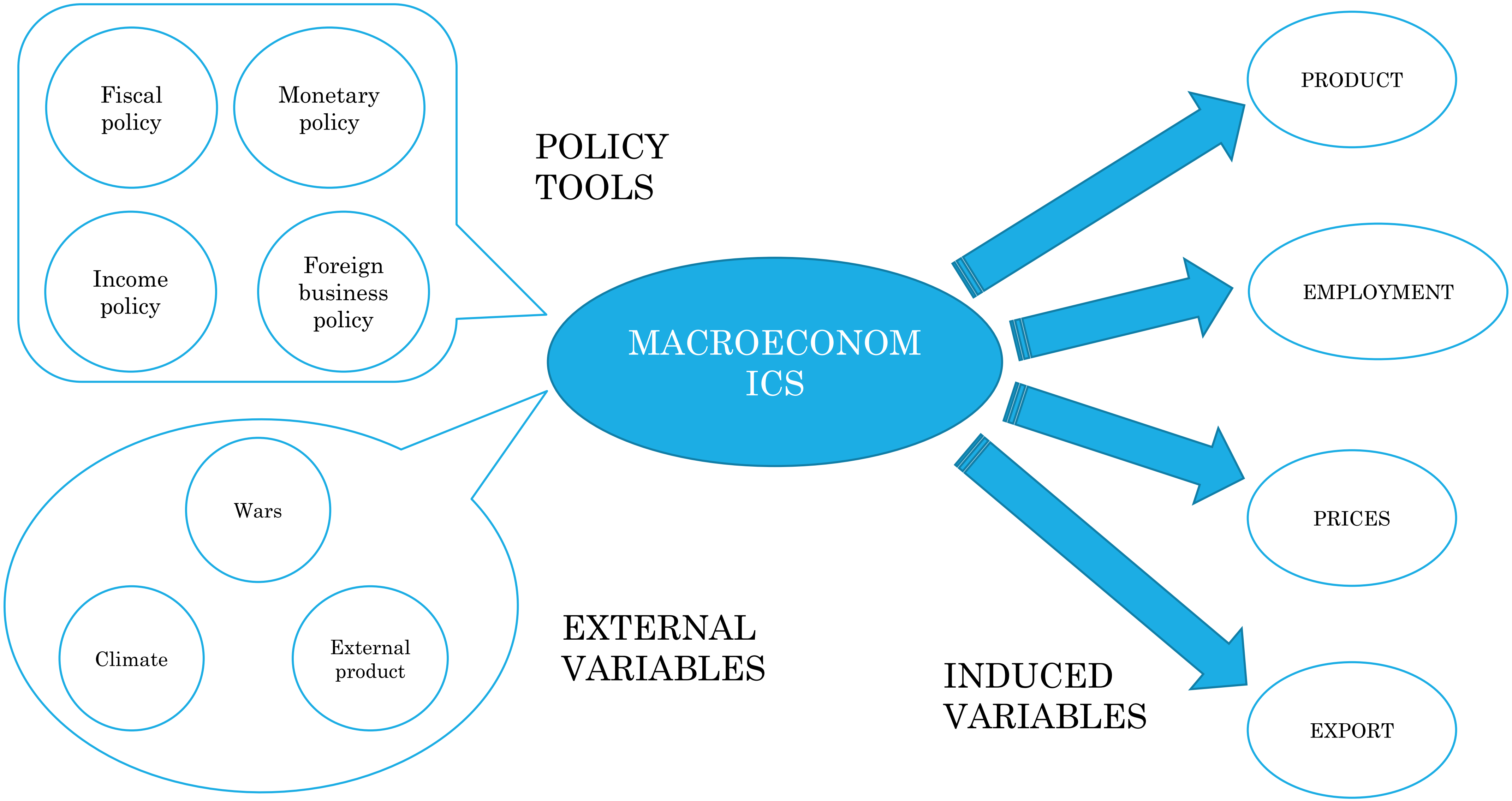
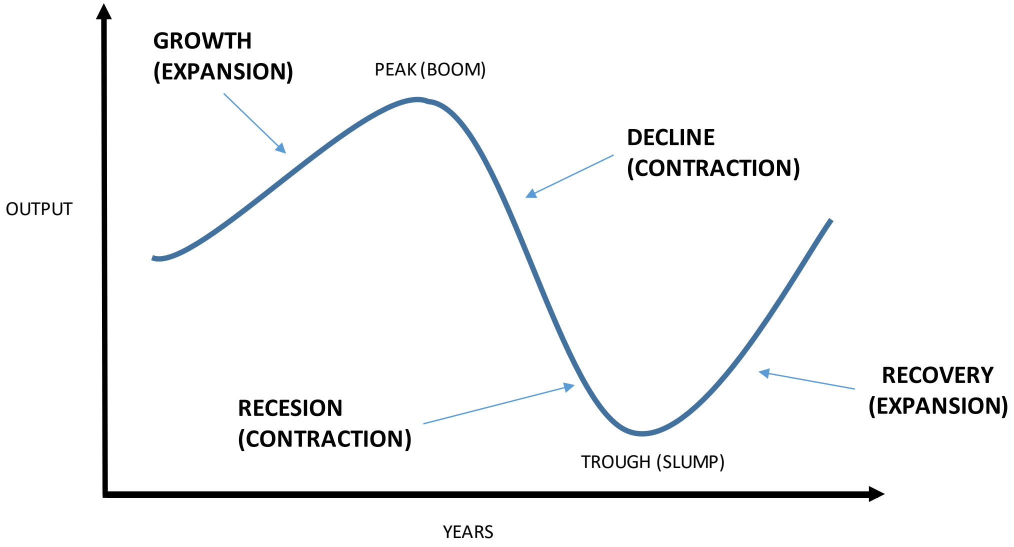
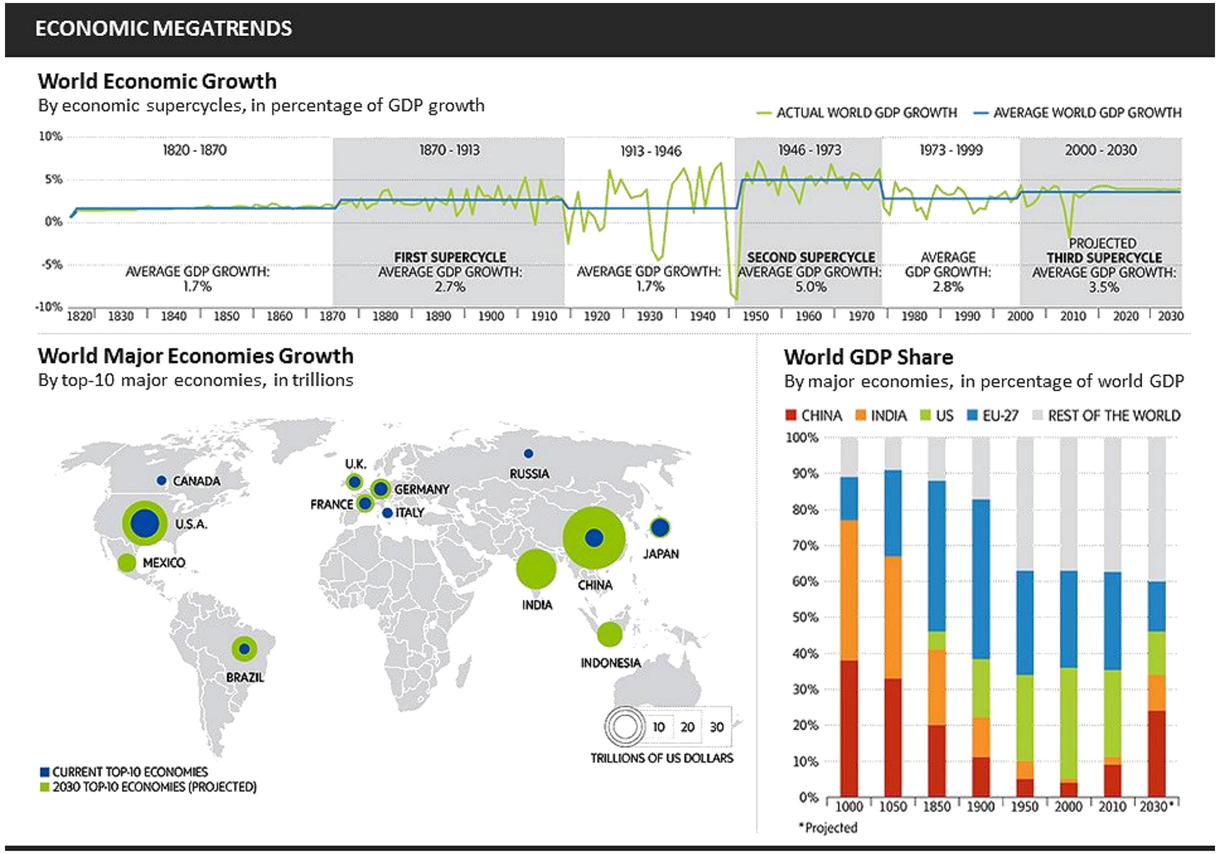

Fiscal policy
Monetary policy
Income policy
Foreign business policy
POLICY TOOLS
MACROECONOMICS
Wars
Climate
External product
EXTERNAL VARIABLES
PRODUCT
EMPLOYMENT
PRICES
EXPORT
INDUCED VARIABLES

Business Cycles

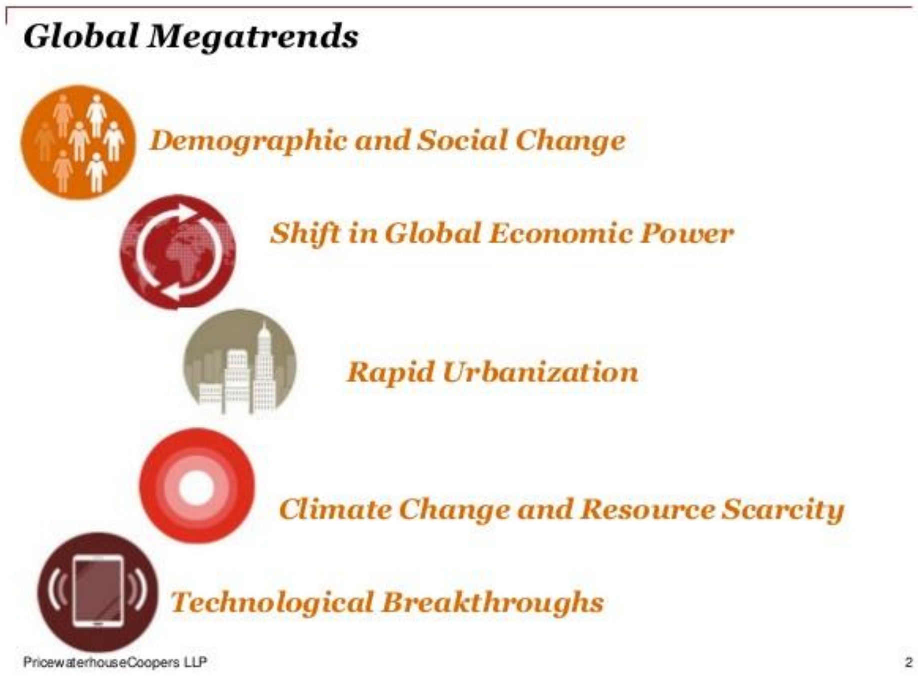
- The business cycle is the periodic but irregular up-and-down movement in economic activity, measured by fluctuations in real gross domestic product (GDP) and other macroeconomic variables (outputs).
- A business cycle is typically characterized by four phases: recession, recovery, growth, and decline - that repeat themselves over time.
- Economists note, however, that complete business cycles vary in length. The duration of business cycles can be anywhere from about two to twelve years, with most cycles averaging six years in length. No two cycles appear to be exactly alike.



Business Cycles



Sources: International Monetary Fund (IMF), Standard Chartered Research, Angus Maddison, World Bank (WB), World Economic Forum (WEF)



Economic Indicators

Most economists talk about where the economy is headed – it's what they do. **But in case you haven't noticed, many of their predictions are wrong.** For example, Ben Bernanke (head of the Federal Reserve) made a prediction in 2007 that the United States was not headed into a recession. He further claimed that the stock and housing markets would be as strong as ever. As we know now, he was wrong.

Because the experts' predictions are often unreliable, **it is important to develop your own understanding of the economy and the factors shaping it**. Paying attention to economic indicators can give you an idea of where the economy is headed so you can plan your finances and even your career accordingly.

There are two types of indicators you need to be aware of:

- **Leading indicators** often change prior to large economic adjustments and, as such, can be used to predict future trends.
- **Lagging indicators**, however, reflect the economy's historical performance and changes to these are only identifiable after an economic trend or pattern has already been established.

Economic Indicators

GDP Conference Board Consumer Confidence CPI jobless claims

trade balance GNI current account balance ZEW

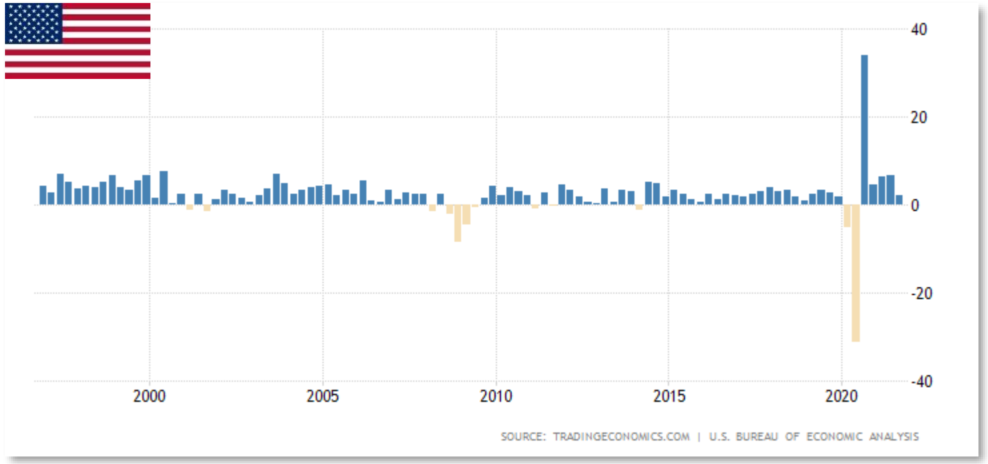
IFO PMI payrolls

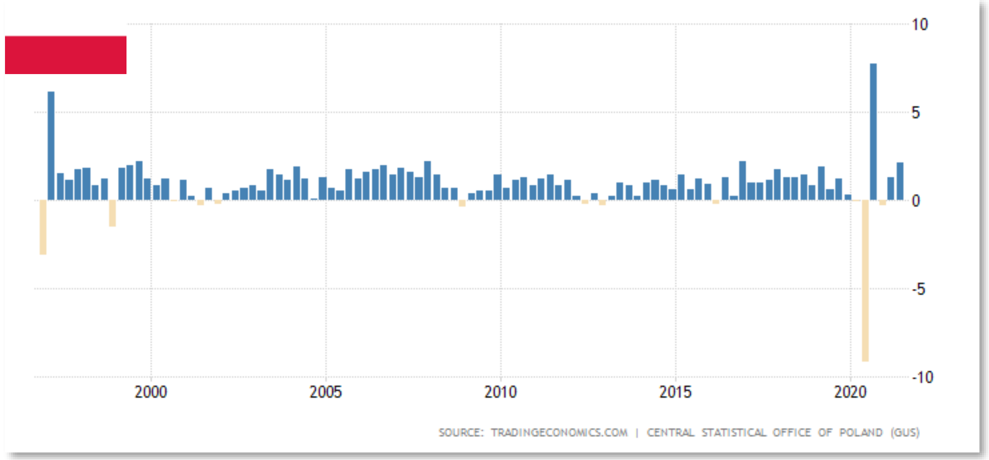
unemployment

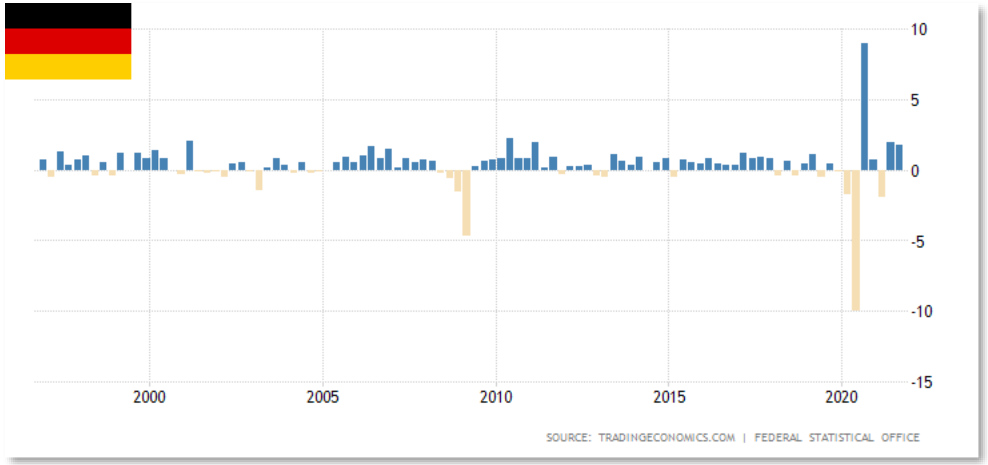
ISM Manufacturing Index factory orders Chicago PMI LIBOR

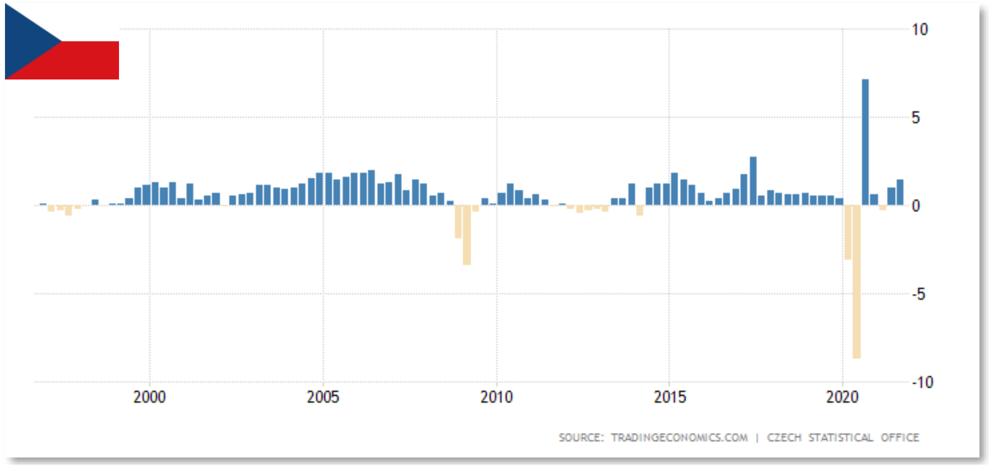
CCI Philadelphia FED Index industrial production

Lagging Economic Indicators: Gross Domestic Product (GDP)









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Lagging Economic Indicators: Gross Domestic Product (GDP)

The expenditure approach utilizes four main components of GDP:

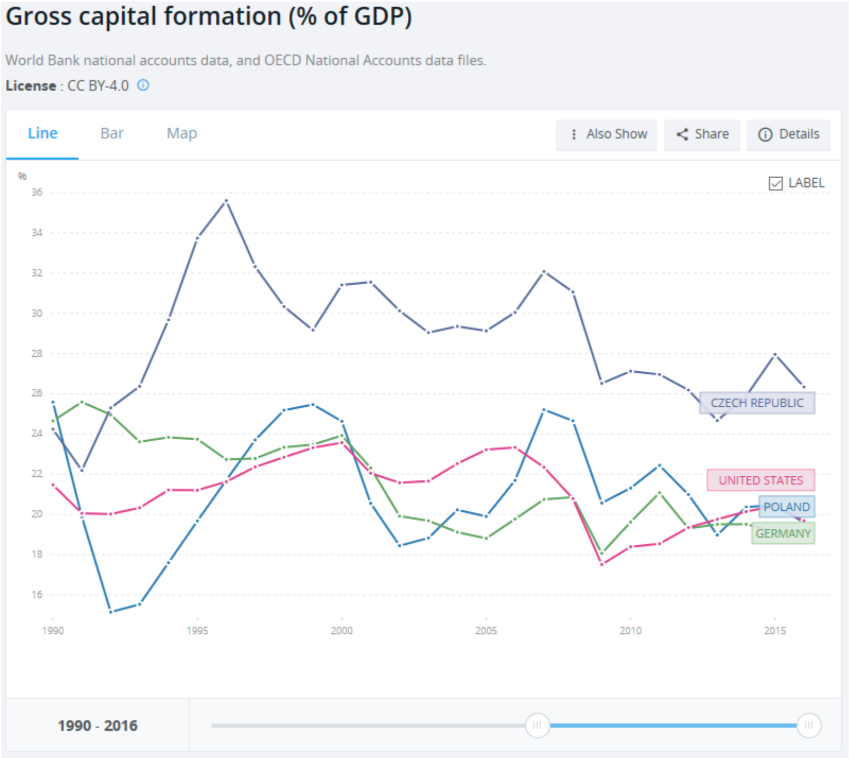
$$GDP = C + I + G + (X - M)$$

Consumption (C) - personal consumption expenditures

Investment (I) - fixed investment and changes in business inventories.

Government (G) - transfer payments are not included in GDP

Net Exports - This is calculated by subtracting a nations imports (M) from exports (X).



Source: Worldbank

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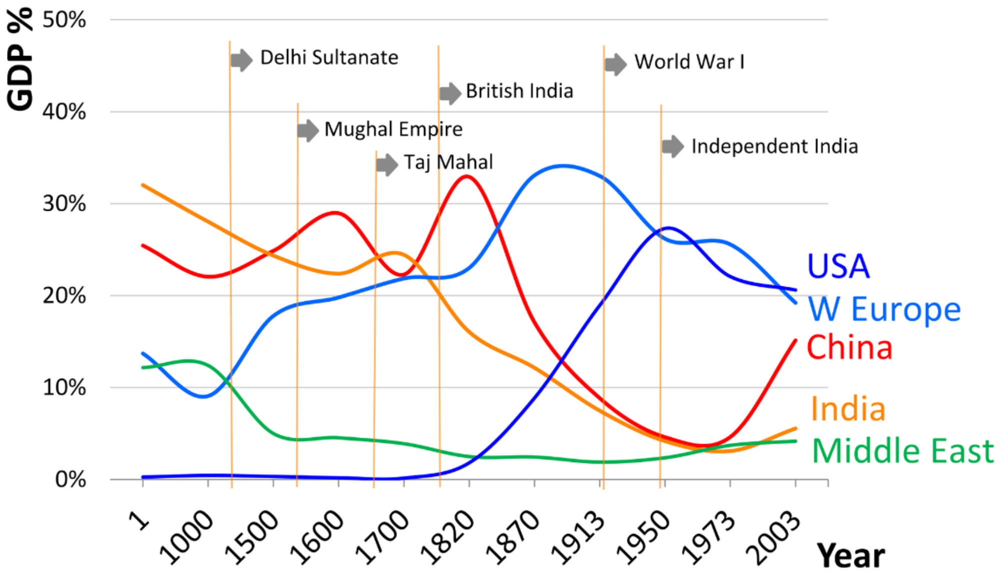
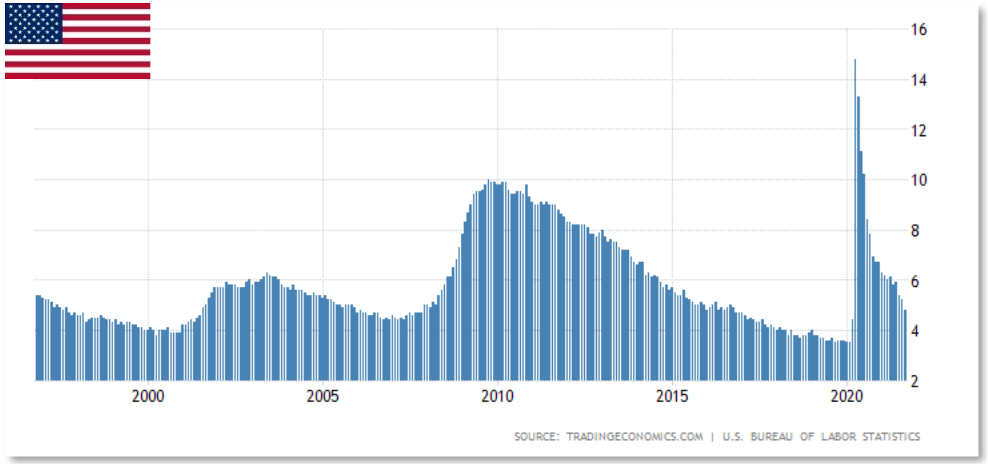
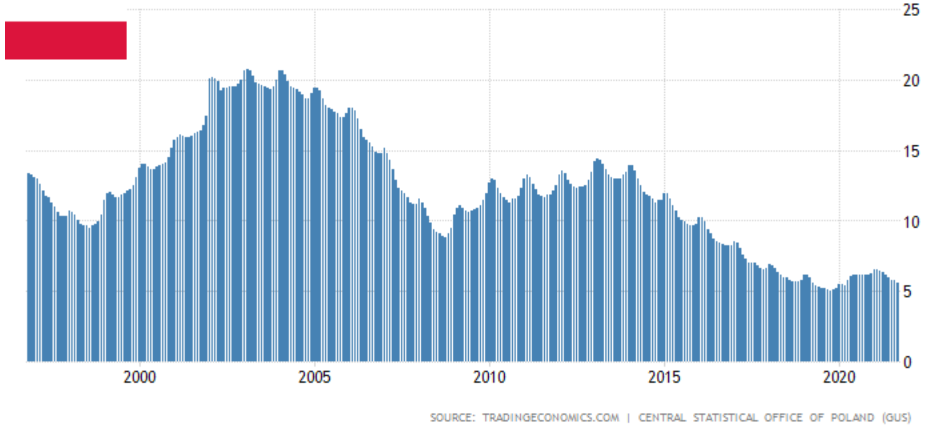
LAGGING ECONOMIC INDICATORS: GROSS DOMESTIC PRODUCT (GDP)

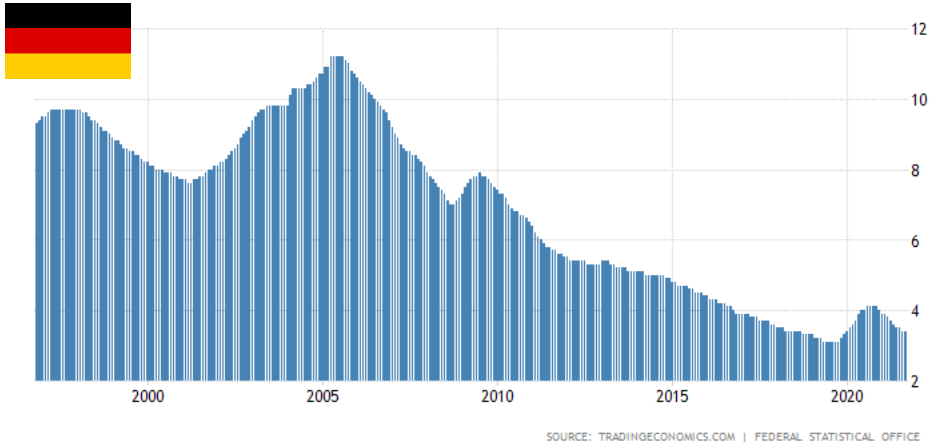


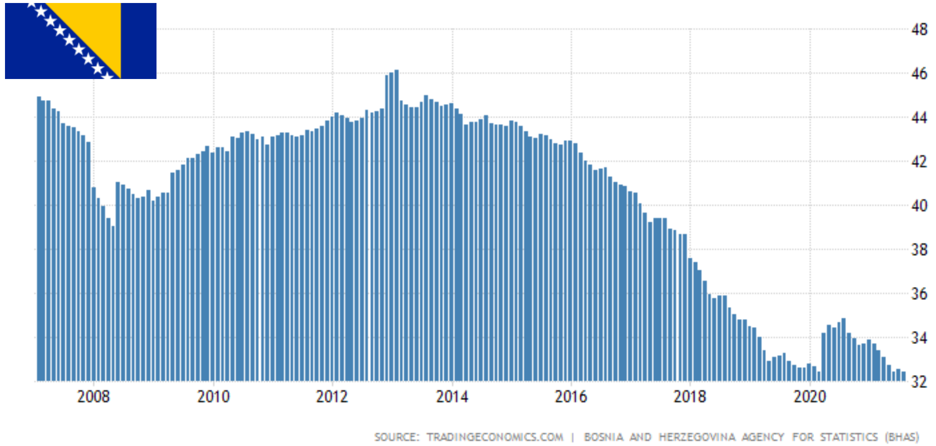
The global contribution to world's GDP by major economies from 1 CE to 2003 CE according to Angus Maddison's estimates. Up until the early 18th century, India and China were the two largest economies by GDP output. Source: Wikipedia

Lagging Economic Indicators: Unemployment Rate









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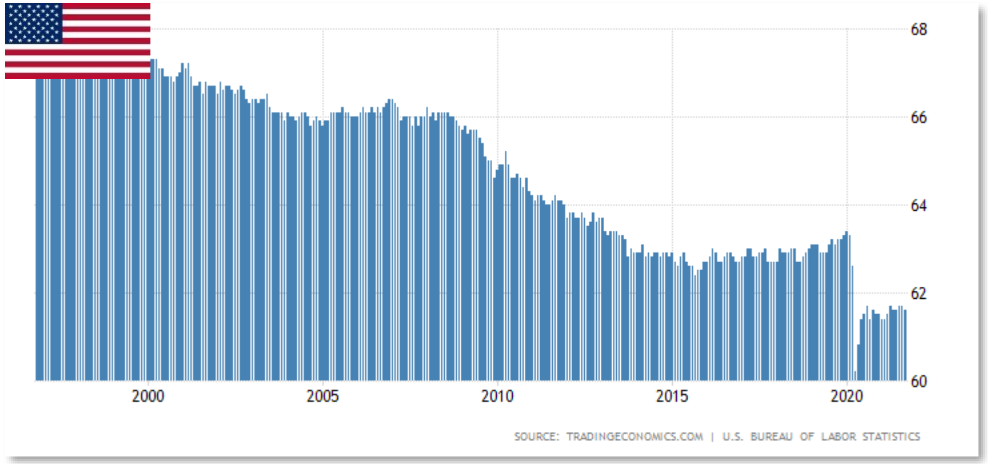
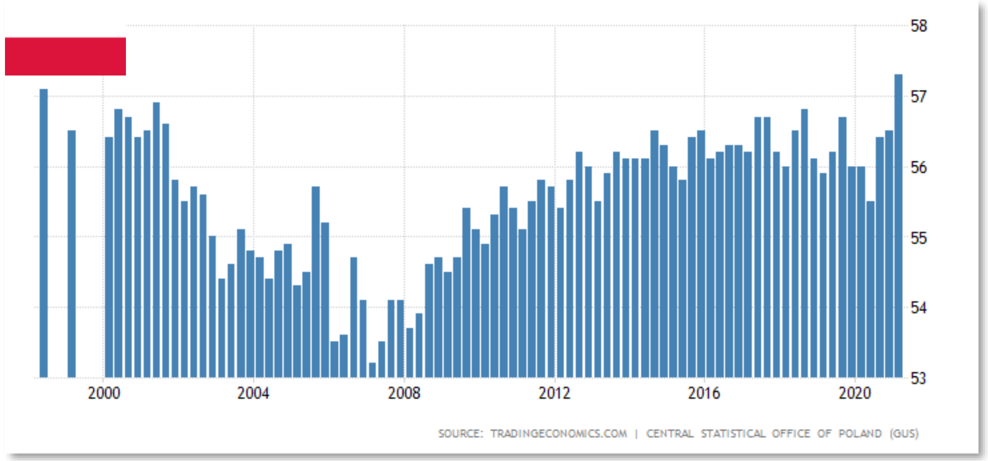
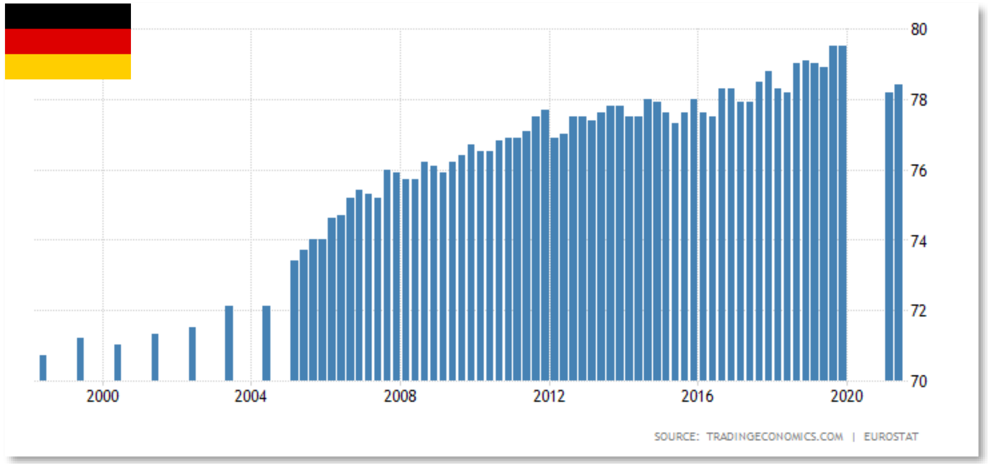
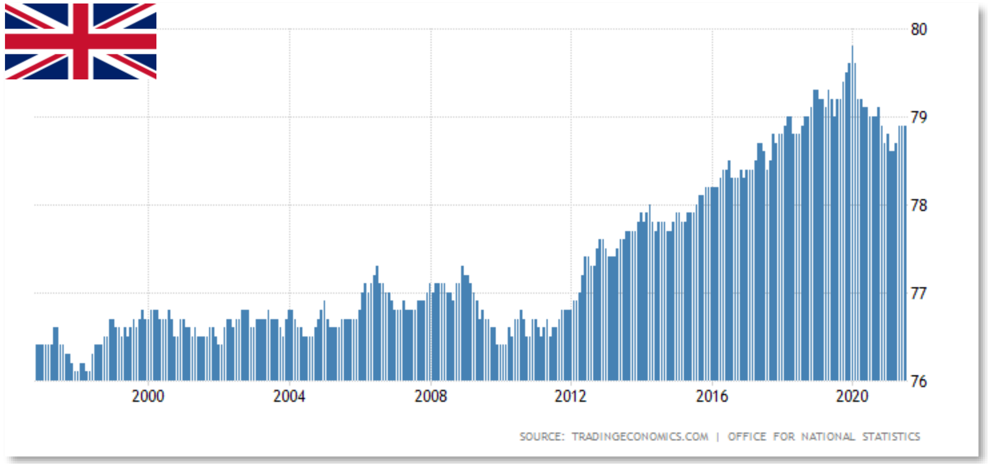
Lagging Economic Indicators: Labour Force Participation Rate









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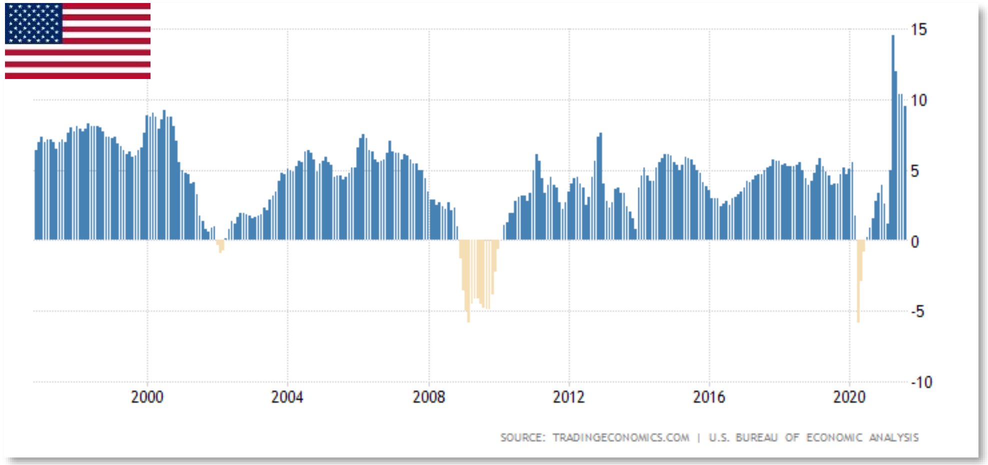
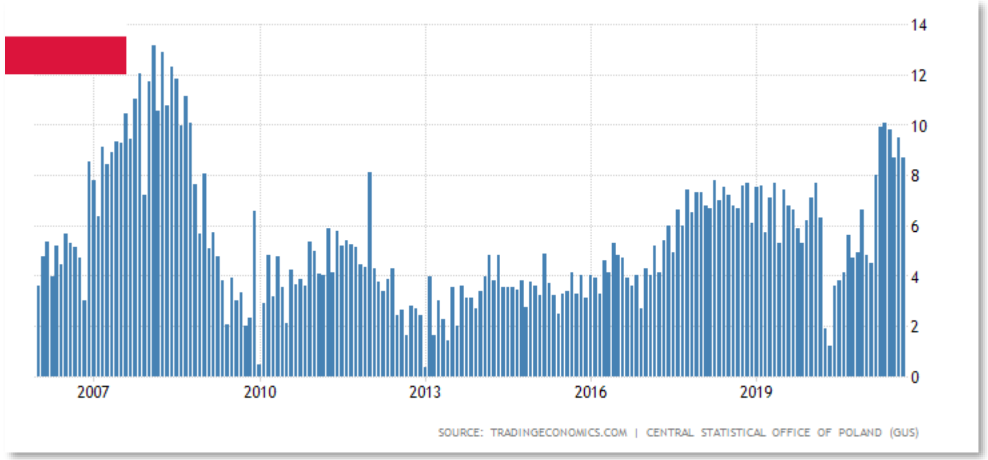
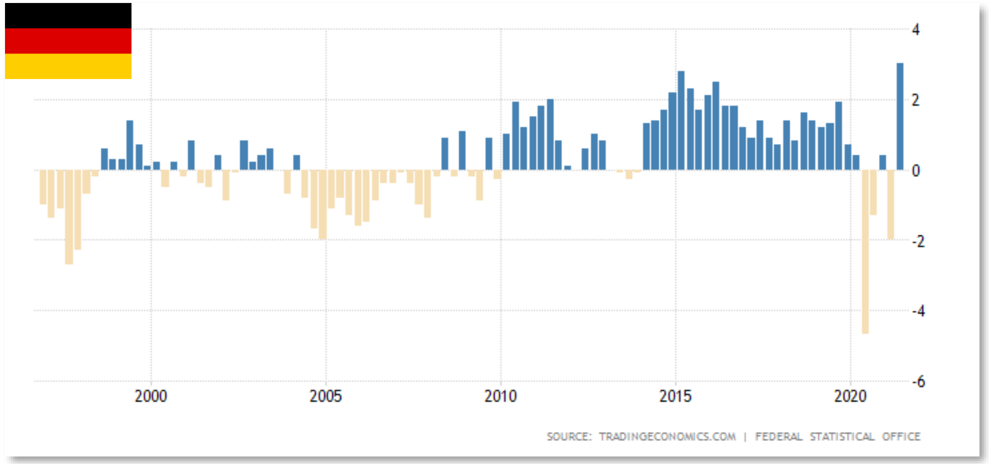
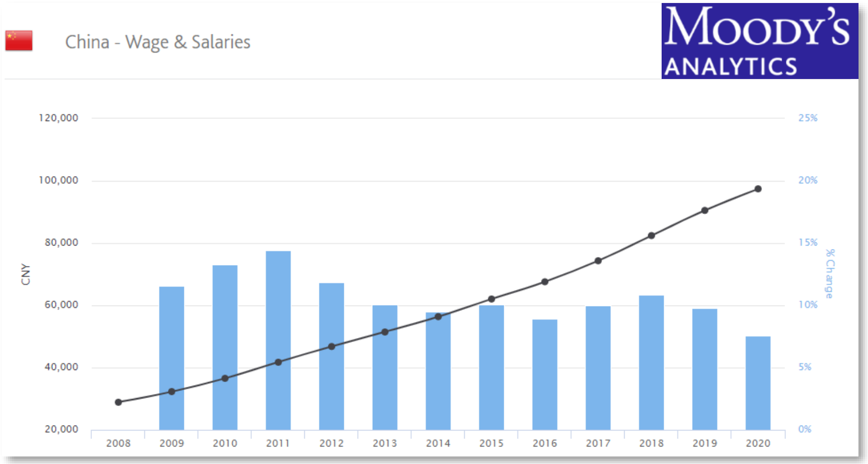
Lagging Economic Indicators: wage growth









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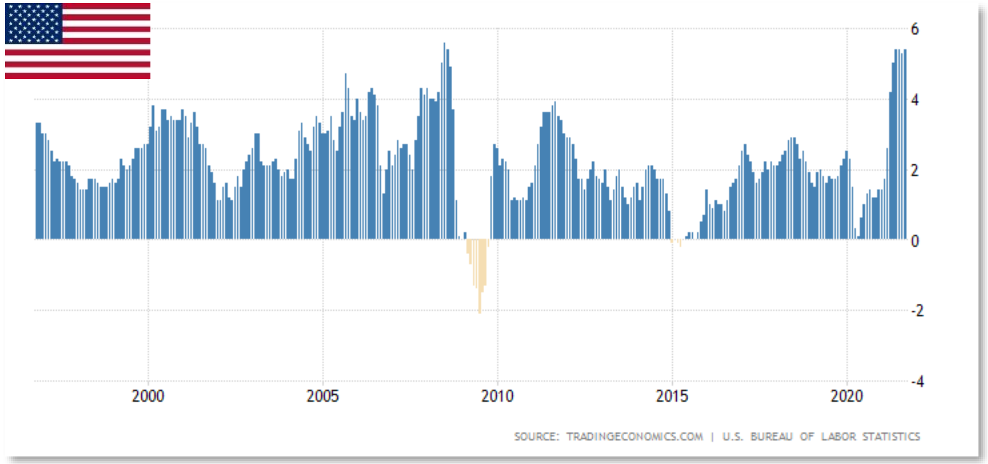
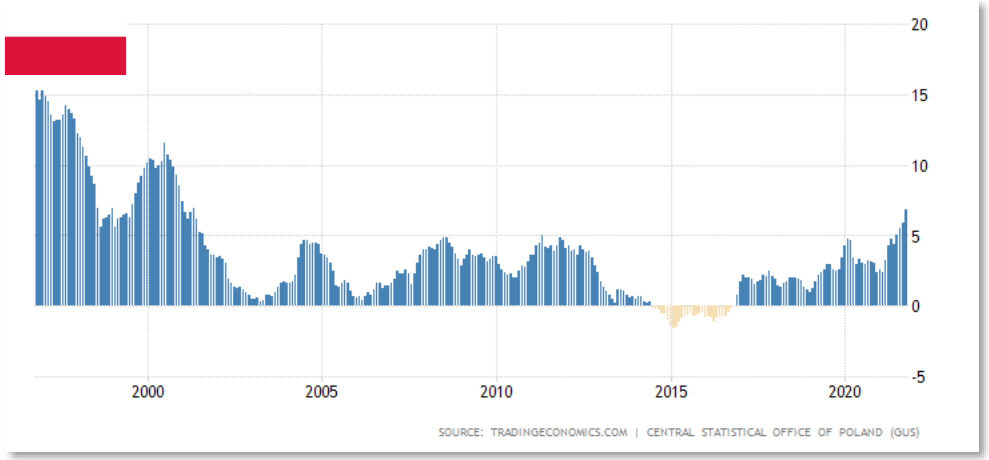
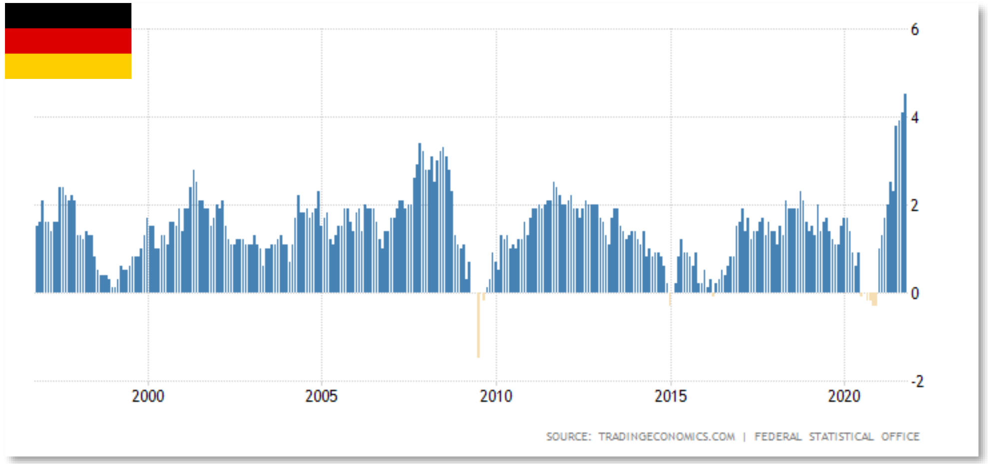
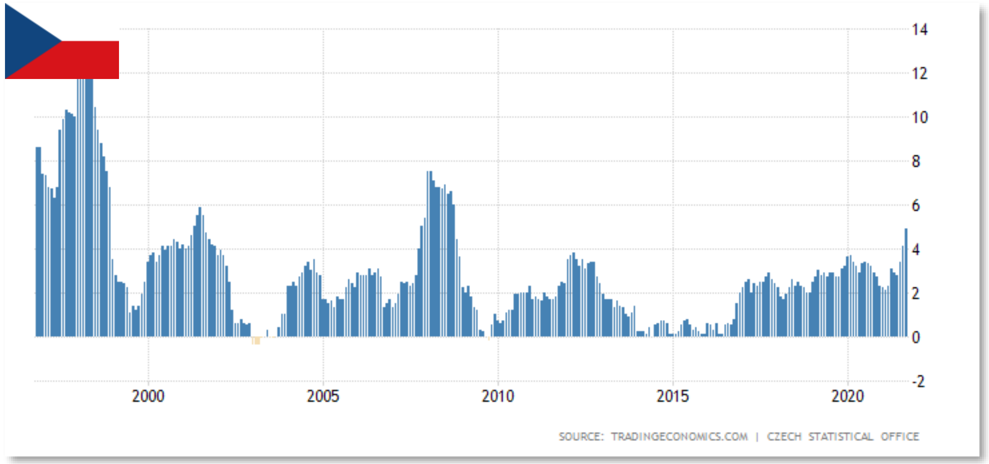
Lagging Economic Indicators: inflation rate









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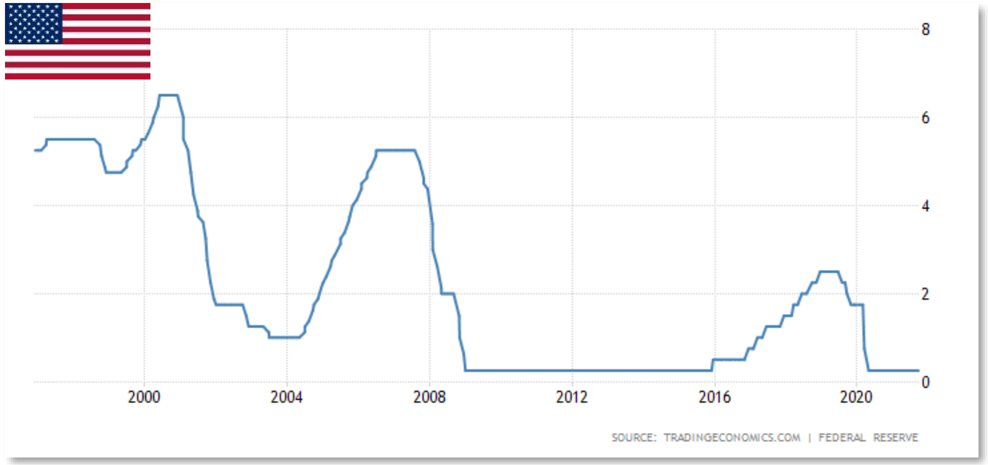
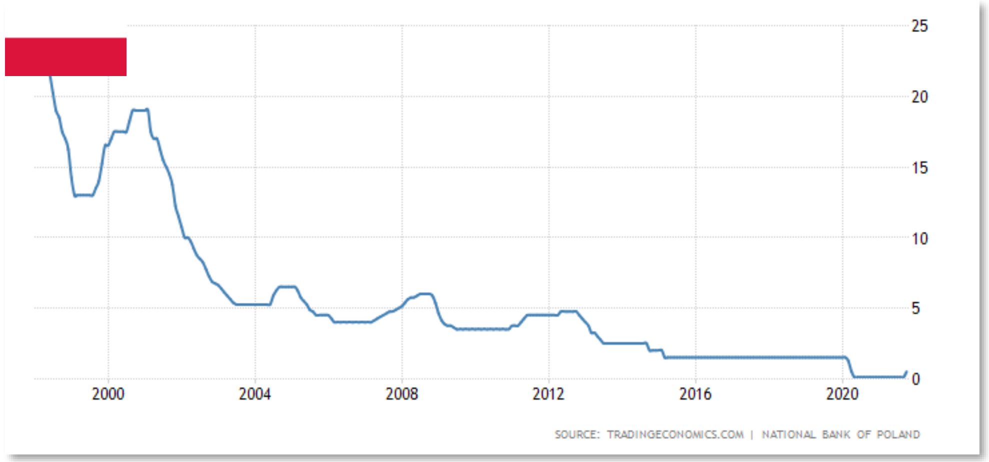
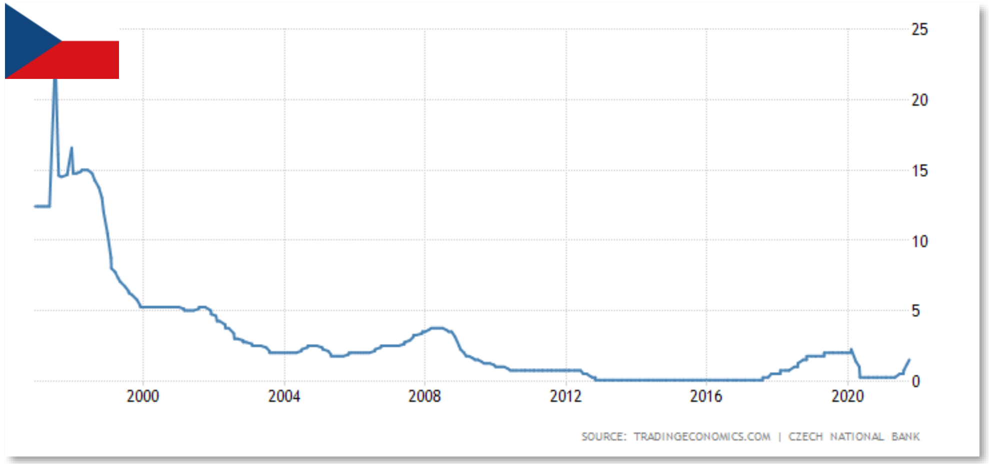
Lagging Economic Indicators: Interest Rates







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LEADING ECONOMIC INDICATORS

Manufacturing or Service **Purchasing Managers' Index (PMI)** measures the performance of the sector and is derived from a survey of companies. In US → ISM manufacturing index

PMI is based on five individual indexes with the following weights:

- Production level (25%)
- New orders (from customers) (30%)
- Supplier deliveries (are they coming faster or slower?) (15%)
- Inventories (10%)
- Employment level (20%)

> 50

< 50

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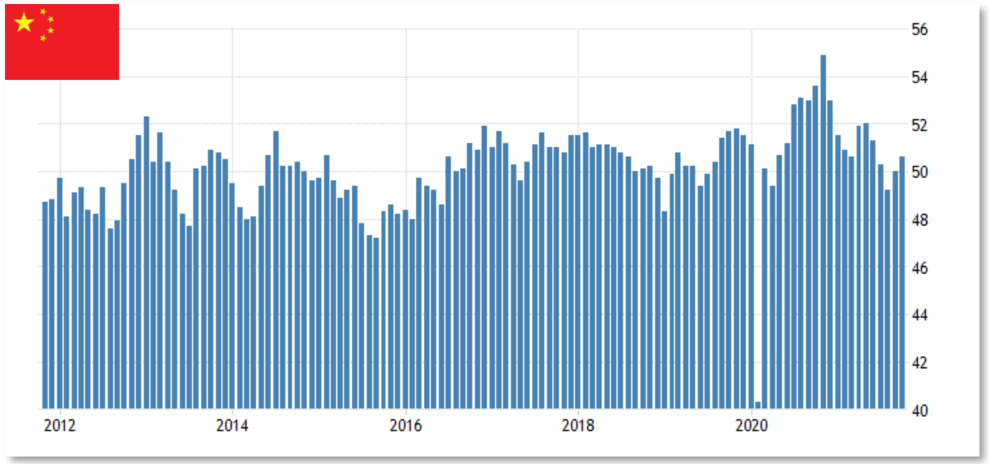
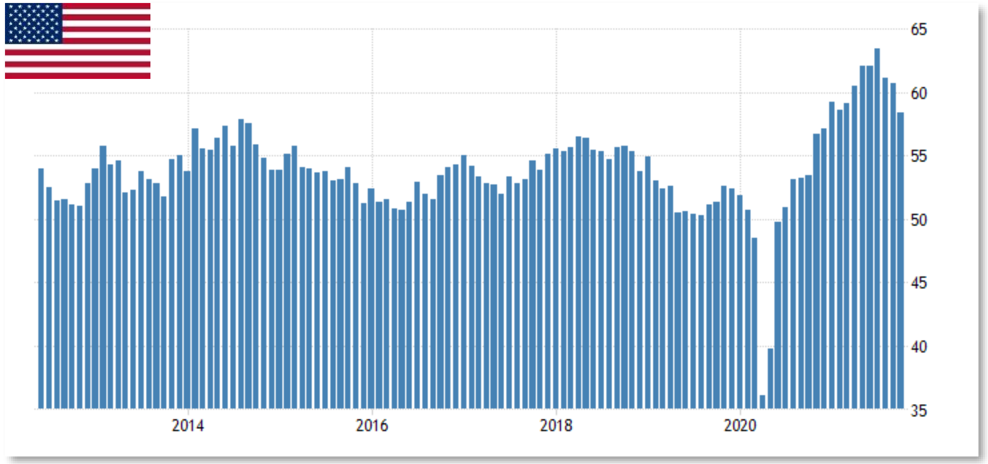
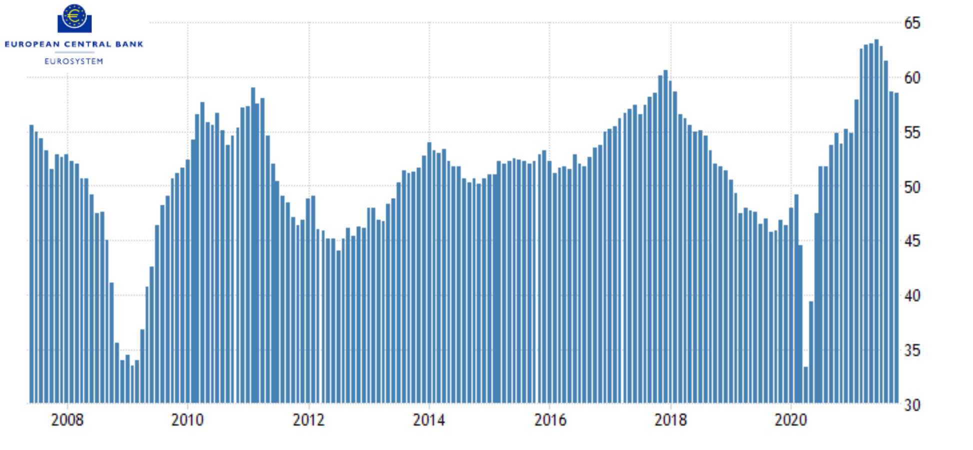
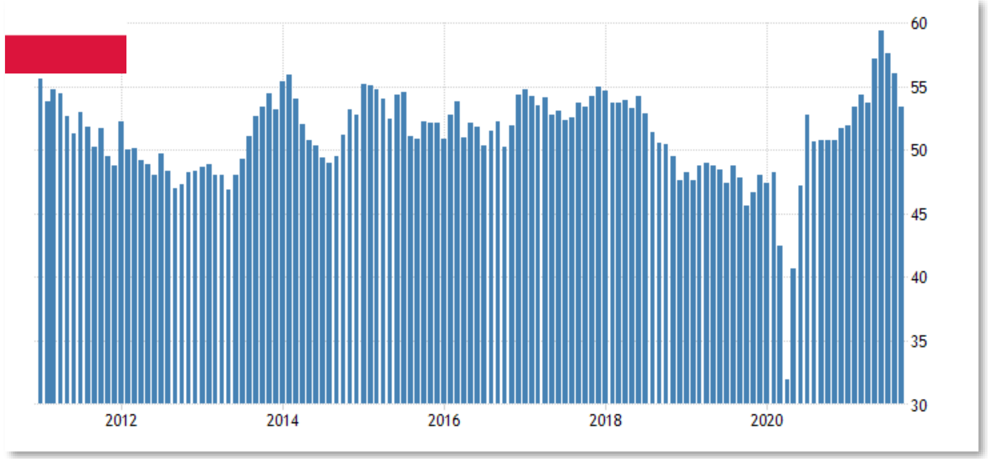
Leading Economic Indicators: PMI (manufacturing)









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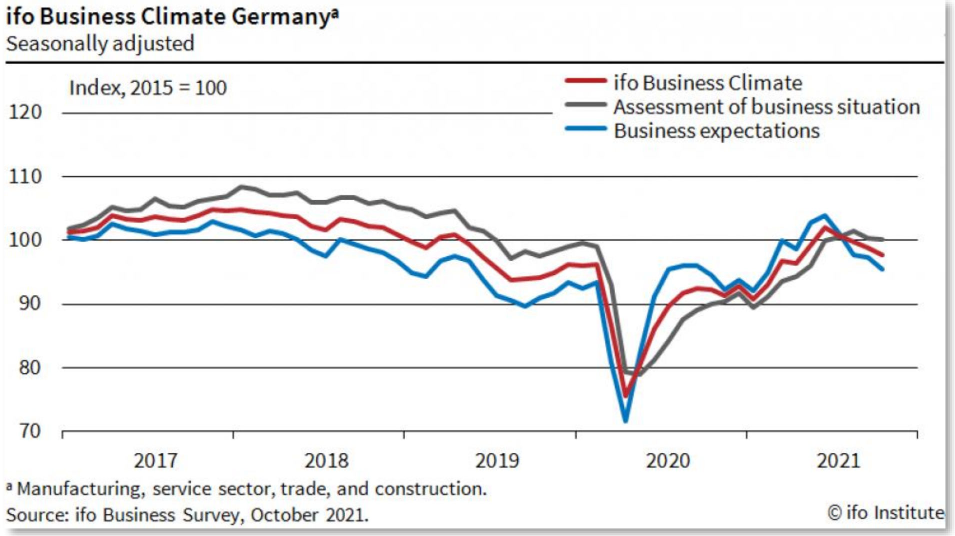
LEADING ECONOMIC INDICATORS

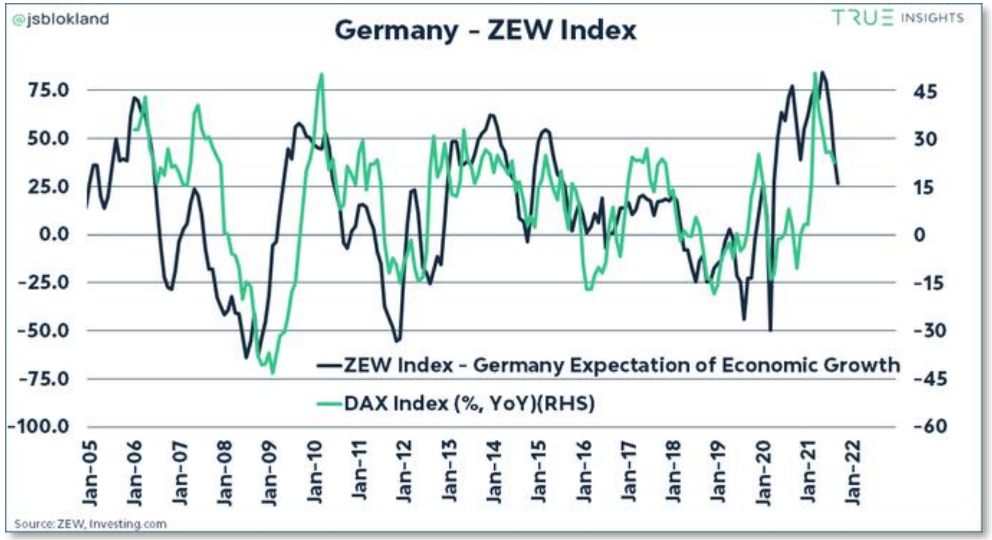
Ifo Business Climate Index (IFO), a leading indicator for economic activity prepared by the Ifo Institute for Economic Research in Munich, is based on around 7000 monthly survey responses from firms in manufacturing, construction, wholesaling and retailing in Germany. The firms are asked to give their assessments of the current business situation and their expectations for the next six months.

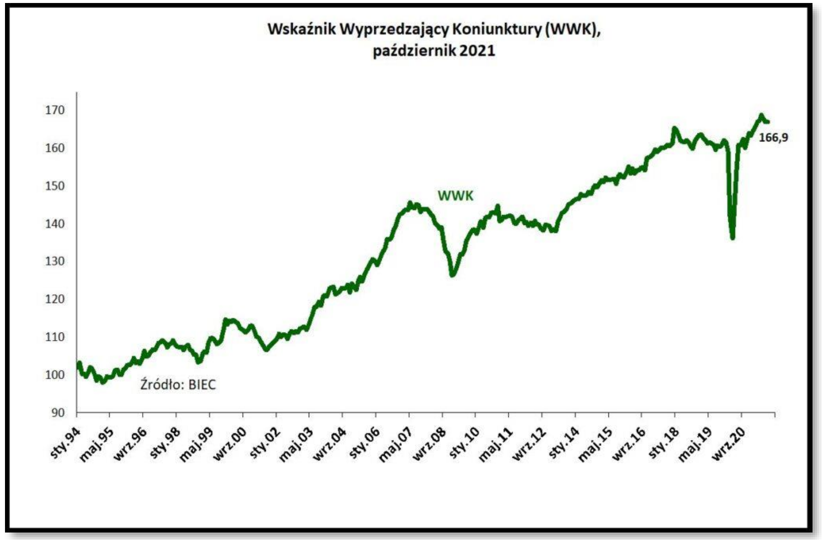
ZEW Economic Sentiment (ZEW), a monthly economic survey, is an consolidation of the sentiments of approximately 350 economists and analysts regarding the economic future of Germany for the next six months. The survey shows the balance between those analysts who are optimistic about Germany's economic future and those who are not.

Indexes for Poland published by **Bureau for Investments and Economic Cycles (BIEC)**

Leading Economic Indicators







Qualitative factors – ignorance which could cost you money

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Financial Analysis in CORPORATE CREDIT MANAGEMENT

Thank you!