PICM Polski Instytut Credit Management
Polish Institute of Credit Management

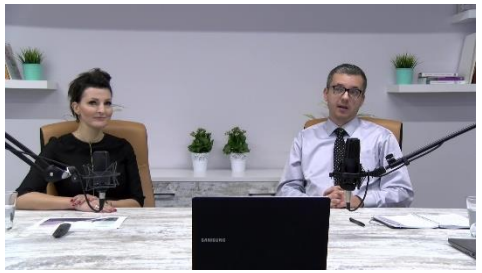
MĄDRE ZARZĄDZANIE RYZYKIEM KREDYTOWYM

CREDIT CLUB PICM

CREDIT CLUB PICM ON-LINE

CONFERENCE CREDIT RISK

Credit Manager magazine



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CORPORATE CREDIT MANAGEMENT – part 1

I. The role of Corporate Credit Management
II. Corporate credit risk – concepts and definitions
III. The tasks of Corporate Credit Management
IV. Credit assessment methodology – introduction
V. Credit risk signals and credit events
VI. Cooperation with external entities

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CORPORATE CREDIT MANAGEMENT – part 2

I. Information – must have for every Credit Manager
II. Quantitative factors – first but not most important
III. Qualitative factors – ignorance which could cost you money
IV. Creditworthiness modelling
V. Specifics in the credit analysis
VI. The right approach to credit risk assessment

The role of Corporate Credit Management

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

WHY DO WE ASSESS THE CREDIT RISK?

NEGOTIATION

PROFITABILITY PROTECTION

SEGMENTATION

The role of Credit Management

THE ROLE OF CREDIT MANAGEMENT

Different or common goals?

Credit/Risk  Sales/Profit

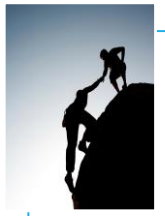
STRONG COMPETITION – **WITHOUT SALES COMPANY COULD NOT SURVIVE** – BUT HOW ABOUT THE LIQUIDITY …

UNDERSTANDING OF THE ROLE IN THE ORGANIZATION (dialog, meetings, trainings)

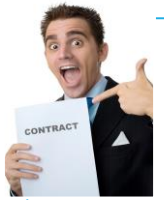
RESPECT AND COOPERATION (win-win)

SUCCESS (FOR THE COMPANY AS A WHOLE)

The role of Credit Management



Coach



Sales man

Optimist

Bridge builder

Calculator of probability

Guru

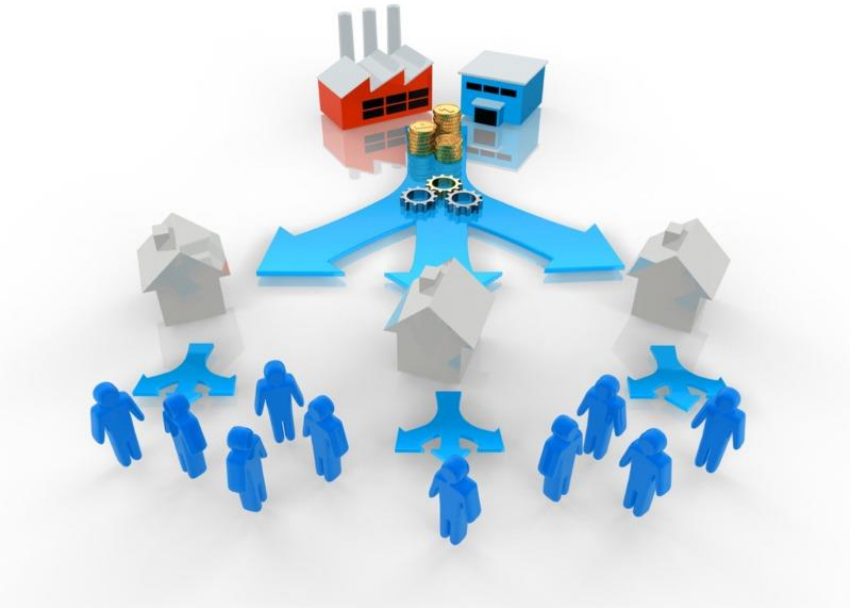
Analyst

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?

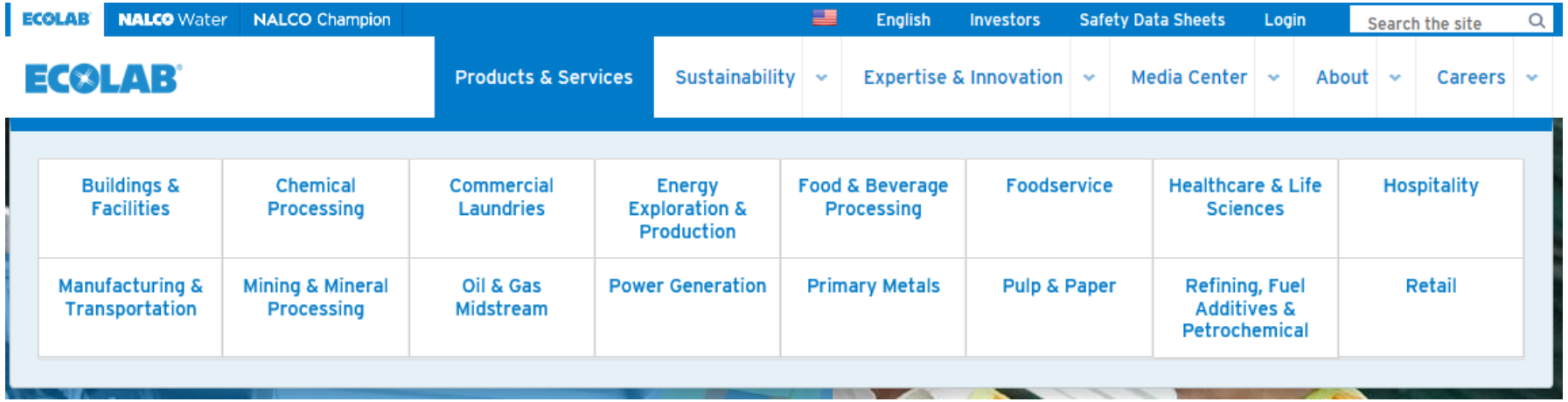
Business & customers

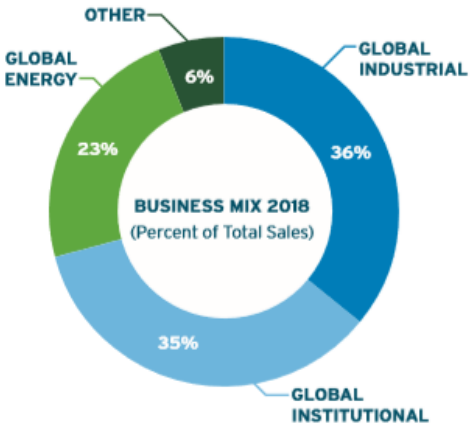
Know your business



Know your customers

Business & customers





GLOBAL INDUSTRIAL: water treatment, cleaning & sanitizing products to Water, Food & Beverage, Paper, Life Sciences, Textile Care

GLOBAL INSTITUTIONAL: Specialty & Healthcare – cleaning and sanitizing to foodservice, hospitality, lodging, healthcare, government, education, retail

GLOBAL ENERGY: process chemicals & water treatment to oil & gas and petrochemical industries

OTHER: pests elimination, colloidal technologies group, equipment care

arjowiggins SEQUANA

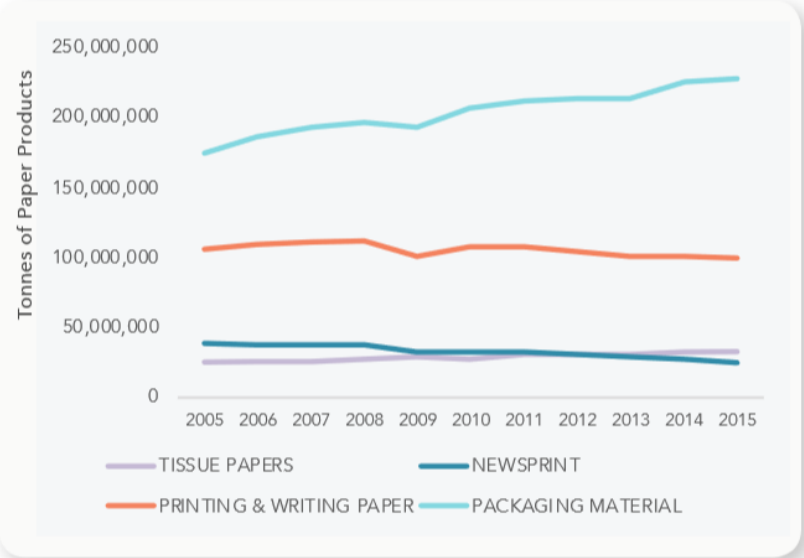
TRANSGOURMET coop

Business & customers: PAPER

THE STATE OF THE GLOBAL PAPER INDUSTRY 2018

Shifting Seas: New Challenges and Opportunities for Forests, People and the Climate

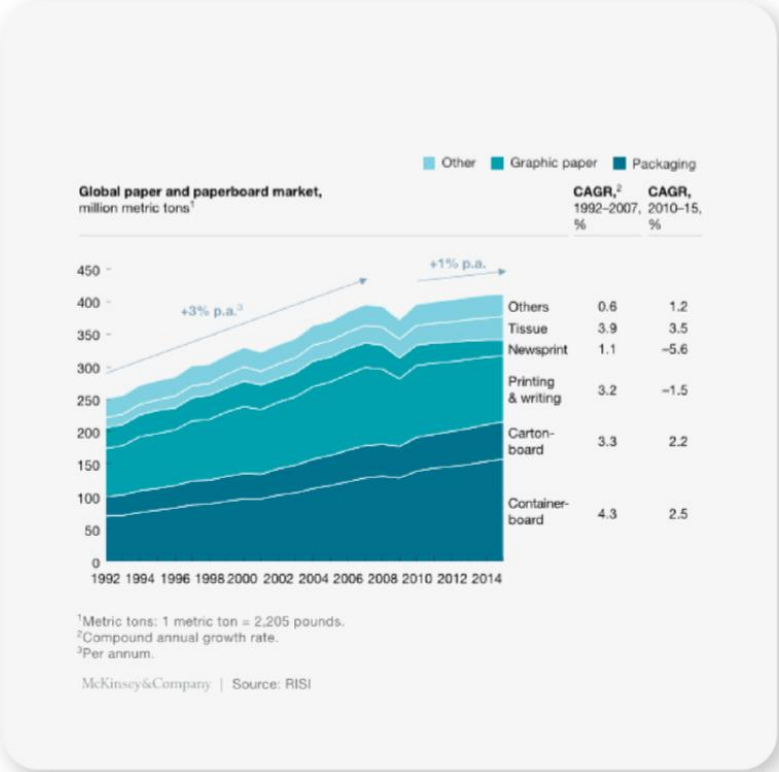
Figure 5: Global paper product consumption, 2005–2015, by selected product types



Source: FAO Yearbook Statistics: Forest Products, Food and Agriculture Organization of the United Nations, 2005–2015

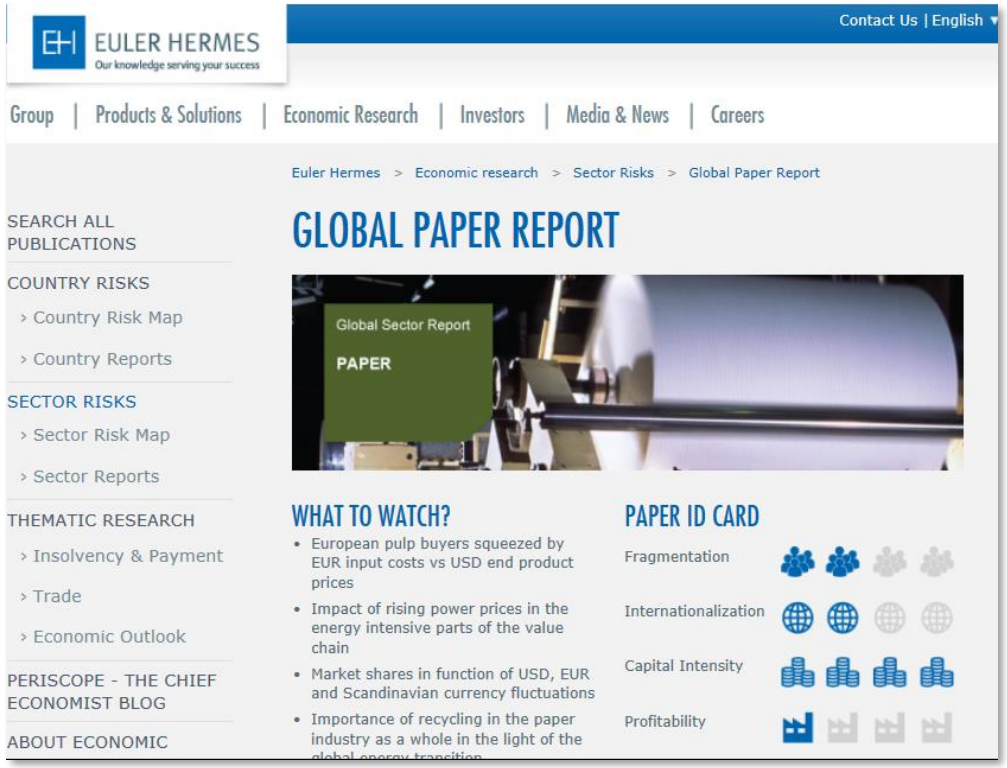
Environmental Paper Network

Figure 5: Global paper and paperboard market, million metric tons



Source: McKinsey and Company/RISI[9]

Business & customers: PAPER



KEY PLAYERS

COUNTRY	ROLE	SECTOR RISK
	#1 Producer #1 Consumer	
	#2 Producer	
	#3 Producer	

STRENGTHS

- Growing needs for (cardboard) packaging, in line with manufacturing and skyrocketing e-commerce activities
- New market outlets stemming from rising middle class in emerging markets
- Rising demand for hygiene products

WEAKNESSES

- High sensitivity to feedstock costs (i.e. pulp)
- Ability to face high investments costs to ensure future growth
- Plastics in competition against cardboard in the packaging outlet depending on variations of ethylene price vs. pulp (NBSK) price

Business & customers: RETAIL

BUSINESS INSIDER

TECH | FINANCE | POLITICS | STRATEGY | LIFE | ALL

A jobs threat worse than mass store closures than 7 million retail workers

Hayley Peterson May 18, 2017, 10:39 AM

Nearly half of retail workers are at risk of losing their jobs to robots and other automation technology, according to a new report.

Reuters

Roughly 6 million to 7.5 million retail jobs "likely will be automated out of existence in the coming years, leaving a large portion of the retail workforce at risk of becoming 'stranded workers,'" according to the 56-page report by investment advisory firm Cornerstone Capital Group.

EDITION: EU

ZDNet

CENTRAL EUROPE | MIDDLE EAST | SCANDINAVIA | AFRICA | UK | ITALY

MUST READ: Hacktivist attacks dropped by 95% since 2015

Amazon Go, Cafe X show a future of retail automation

The two futuristic retail experiences offer a contrast in how advanced tech can be used to prepare beverages on the spot as well as eliminate the scourge of the checkout line. But humans are still in the picture for now.

By Ross Rubin | April 15, 2019 -- 16:57 GMT (17:57 BST) | Topic: Amazon

Deloitte.

Retail Trends 2019

Retail Re-invented

Business & customers: RETAIL

1.

In-store revolution

In the future, we believe there will be fewer better stores. With smaller portfolios of stores, retailers will be able to invest more to ensure those stores meet the needs of their consumers. During this period of disruption in retail, innovation has continued with many retailers taking the opportunity to reconsider the role their physical stores play in delivering the overall customer experience.

2.

Re-inventing retail

It's not just stores that are changing; as the way that consumers shop evolves the model of retail is adapting to meet consumer needs and behaviour.

3.

East beats West

From the self-service supermarket, through the modern department store to the development of e-commerce, many of the major innovations in retail have been developed in the West before being exported around the World. While the pace of development in the US and Europe is arguably as fast as it has ever been, the rate of change in the East and particularly China is happening even faster.

Deloitte. Searc

Retail Trends 2019

Retail Re-invented

Squeezed between weakening demand and rising costs

Retail is an industry under pressure. Many retailers find themselves in an uncomfortable position as margins are squeezed between weakening demand and rising costs.

Consumer confidence crumbles

Consumer confidence fell in the second half of 2018 and, with uncertainty around ongoing Brexit negotiations, a Global economic slowdown and a China/US trade war, consumers remain cautious.

Costs are rising

Wages hit a ten year high in November 2018 and business rates, commodity prices and pensions also remain high.

Channel shift

At the end of 2018, e-commerce was 20% of all retail sales. Although the majority of sales still take place in-store, the bulk of growth is coming from online. For some, online is fast becoming the channel and, with this shift, there is a need to balance investment growth with store profitability.

For some it is already a fight for survival

Last year saw retailers shift from a store-based past to a digital future. While some businesses are thriving, the slow adopters are fighting to survive.

Record levels of discounting

Discounts in the run-up to and immediately after Christmas 2018 were broader and deeper than we have seen in recent years, with more than half of all clothing on sale in the run-up to the festive period.

Increase in store closures

In the last year, we have seen an acceleration in the number of store closures as under-pressure retailers have tried to restructure their businesses (7,500 net store closures in 2018, a 36% increase on 2017).

Increase in retail CVAs and administrations

For those unable to reduce their cost base, we have seen an increase in both the number of CVAs and the number of administrations.

Business & customers

SIZE (SALES) in USD	COMPANY
20 B	Henkel
15 B	ECOLAB
12 B	ISS
3 B	Sealed Air Re-imagine, Diversey
2 B	ServiceMaster

Business & customers

CONSOLIDATED STATEMENT OF INCOME

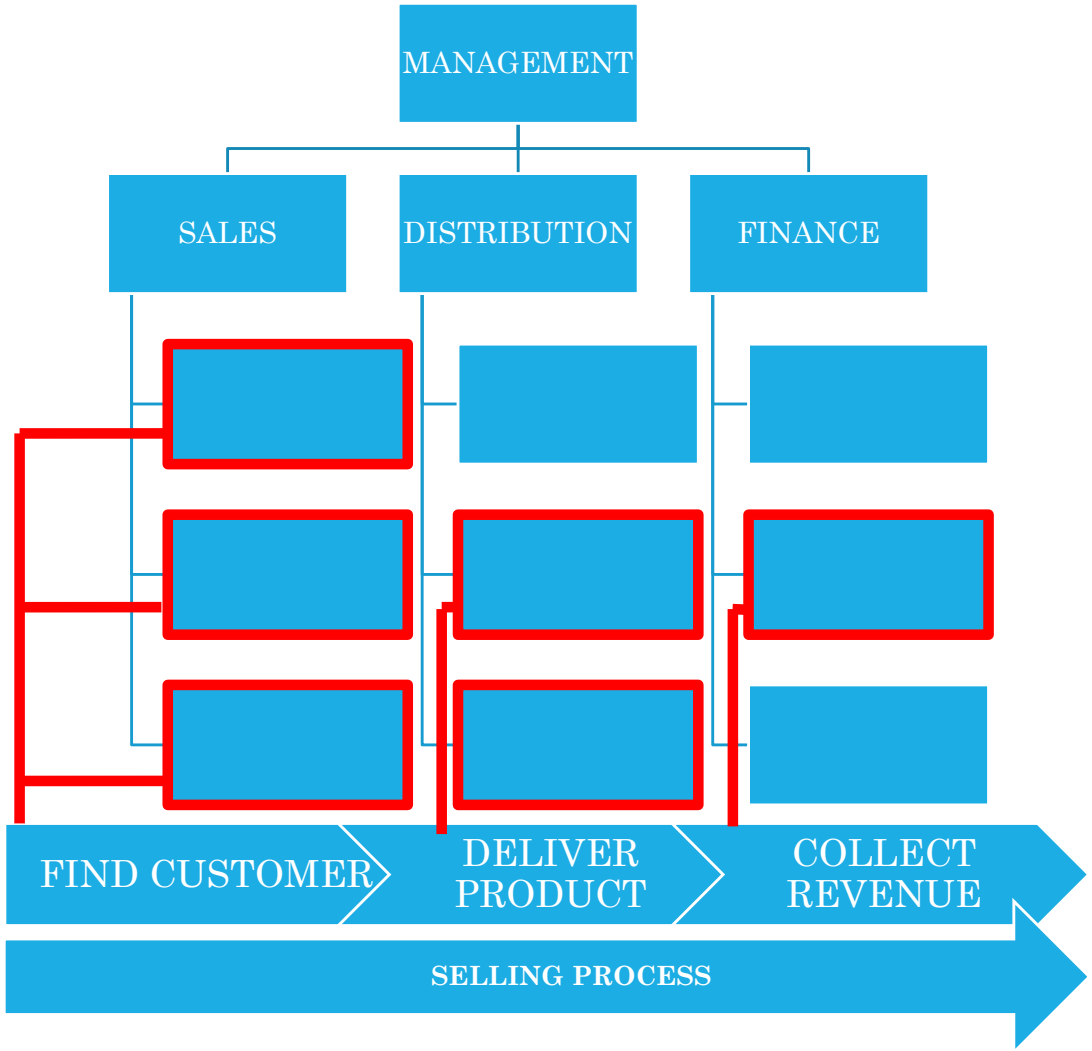
(millions, except per share amounts)	2018	2017	2016
Product and equipment sales	$12,128.6	$11,431.8	$10,904.1
Service and lease sales	2,539.6	2,404.1	2,247.7
Net sales	14,668.2	13,835.9	13,151.8
Product and equipment cost of sales	7,078.5	6,576.9	6,153.3
Service and lease cost of sales	1,547.4	1,487.3	1,380.6
Cost of sales (including special charges (a))	8,625.9	8,064.2	7,533.9
Selling, general and administrative expenses	3,968.6	3,825.3	3,708.2
Special (gains) and charges	126.7	(3.7)	39.5
Operating income	1,947.0	1,950.1	1,870.2
Other (income) expense	(79.9)	(67.3)	(43.8)
Interest expense, net (including special charges (b))	222.3	255.0	264.6
Income before income taxes	1,804.6	1,762.4	1,649.4
Provision for income taxes	364.3	243.8	402.9
Net income including noncontrolling interest	1,440.3	1,518.6	1,246.5
Net income attributable to noncontrolling interest	11.2	14.0	17.5
Net income attributable to Ecolab	$1,429.1	$1,504.6	$1,229.0
Earnings attributable to Ecolab per common share			
Basic	$ 4.95	$ 5.20	$ 4.20
Diluted	$ 4.88	$ 5.12	$ 4.14
Weighted-average common shares outstanding			
Basic	288.6	289.6	292.5
Diluted	292.8	294.0	296.7

Business & customers

CONSOLIDATED BALANCE SHEET

(millions, except per share amounts)	2018	2017
ASSETS		
Current assets		
Cash and cash equivalents	$114.7	$211.4
Accounts receivable, net	2,662.5	2,571.4
Inventories	1,546.4	1,446.5
Other current assets	354.1	365.0
Total current assets	4,677.7	4,594.3
Property, plant and equipment, net	3,836.0	3,707.1
Goodwill	7,078.0	7,167.1
Other intangible assets, net	3,797.7	4,017.6
Other assets	685.1	477.4
Total assets	$20,074.5	$19,963.5
LIABILITIES AND EQUITY		
Current liabilities		
Short-term debt	$743.6	$564.4
Accounts payable	1,255.6	1,177.1
Compensation and benefits	579.7	549.4
Income taxes	100.6	183.6
Other current liabilities	1,006.1	1,000.7
Total current liabilities	3,685.6	3,475.2
Long-term debt	6,301.6	6,758.3
Postretirement health care and pension benefits	944.3	1,025.5
Deferred income taxes	764.6	635.4
Other liabilities	324.8	415.3
Total liabilities	12,020.9	12,309.7
Commitments and contingencies (Note 15)		
Equity (a)		
Common stock	357.0	354.7
Additional paid-in capital	5,633.2	5,435.7
Retained earnings	8,909.5	8,011.6
Accumulated other comprehensive loss	(1,761.7)	(1,643.4)
Treasury stock	(5,134.8)	(4,575.0)
Total Ecolab shareholders' equity	8,003.2	7,583.6
Noncontrolling interest	50.4	70.2
Total equity	8,053.6	7,653.8
Total liabilities and equity	$20,074.5	$19,963.5

Business process vs. silos



The role of Corporate Credit Management

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

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 ECOLAB manages its risks?

Item 1A. Risk Factors.

The following are important factors which could affect our financial performance and could cause our actual results for future periods to differ materially from our anticipated results or other expectations, including those expressed in any forward-looking statements made in this Form 10-K. See the section entitled "Forward-Looking Statements" set forth above.

Our results depend upon the continued vitality of the markets we serve.

Economic downturns, and in particular downturns in our larger markets including the energy, foodservice, hospitality, travel, health care, food processing, pulp and paper, mining and steel industries, can adversely impact our end-users. The well completion and stimulation, oil and gas production and refinery and petrochemical plant markets served by our Global Energy segment may be impacted by substantial fluctuations in oil and gas prices; in 2015 and 2016, the Global Energy segment experienced decreased sales as a result of very challenging global energy market conditions. In recent years, the weaker global economic environment, particularly in Europe and emerging markets such as China and Brazil, has also negatively impacted many of our end-markets. Weaker economic activity may continue to adversely affect these markets. During these periods of weaker economic activity, our customers and potential customers may reduce or discontinue their volume of purchases of cleaning and sanitizing products and water treatment and process chemicals, which has had, and may continue to have, an adverse effect on our business.

Risk

How ECOLAB manages its risks?

Item 1A. Risk Factors.

The following are important factors which could affect our financial performance and could cause our actual results for future periods to differ materially from our anticipated results or other expectations, including those expressed in any forward-looking statements made in this Form 10-K. See the section entitled "Forward-Looking Statements" set forth above.

Our results are impacted by general worldwide economic factors.

Economic factors such as the worldwide economy, capital flows, interest rates and currency movements, including, in particular, our exposure to foreign currency risk, have affected our business in the past and may have a material adverse impact on our business in the future. For example, in 2011 and 2012, the European Union's sovereign debt crisis negatively impacted economic activity in that region as well as the strength of the euro versus the U.S. dollar. Additionally, the June 2016 Brexit vote resulted in a sharp decline in the value of the British pound, as compared to the U.S. dollar and other currencies, and has caused increased fluctuations and unpredictability in foreign currency exchange rates. The possibility for referendum by other EU member states may lead to further market volatility. Other regions of the world, including emerging market areas, also expose us to foreign currency risk. As a result of increasing currency controls, importation restrictions, workforce regulations, pricing constraints and local capitalization requirements, we deconsolidated our Venezuelan subsidiaries effective as of the end of the fourth quarter of 2015. Prior to deconsolidation, across the second through fourth quarters of 2015, we devalued our Venezuelan bolivar operations within our Water, Paper, Food & Beverage, Institutional and Energy operating segments. Similar currency devaluations, credit market disruptions or other economic turmoil in other countries could have a material adverse impact on our consolidated results of operations, financial position and cash flows by negatively impacting economic activity, including in our key end-markets, and by further weakening the local currency versus the U.S. dollar, resulting in reduced sales and earnings from our foreign operations, which are generated in the local currency, and then translated to U.S. dollars.

Risk

How ECOLAB manages its risks?

Our significant non-U.S. operations expose us to global economic, political and legal risks that could impact our profitability.

We have significant operations outside the United States, including joint ventures and other alliances. We conduct business in approximately 170 countries and, in 2018, approximately 47% of our net sales originated outside the United States. There are inherent risks in our international operations, including:

- exchange controls and currency restrictions;
- currency fluctuations and devaluations;
- tariffs and trade barriers;
- export duties and quotas;
- changes in the availability and pricing of raw materials, energy and utilities;
- changes in local economic conditions;
- changes in laws and regulations, including the imposition of economic or trade sanctions affecting international commercial transactions;
- impact from Brexit and the possibility of similar events in other EU member states;
- difficulties in managing international operations and the burden of complying with foreign laws;
- requirements to include local ownership or management in our business;
- economic and business objectives that differ from those of our joint venture partners;
- exposure to possible expropriation, nationalization or other government actions;
- restrictions on our ability to repatriate dividends from our subsidiaries;
- unsettled political conditions, military action, civil unrest, acts of terrorism, force majeure, war or other armed conflict; and
- countries whose governments have been hostile to U.S.-based businesses.

Risk

How ECOLAB manages its risks?

Our overall success as a global business depends, in part, upon our ability to succeed in differing economic, social, legal and politica conditions. We may not continue to succeed in developing and implementing policies and strategies that are effective in each location where we do business, which could adversely affect our consolidated results of operations, financial position or cash flows.

Our results could be adversely affected by difficulties in securing the supply of certain raw materials or by fluctuations in the cost of raw materials.

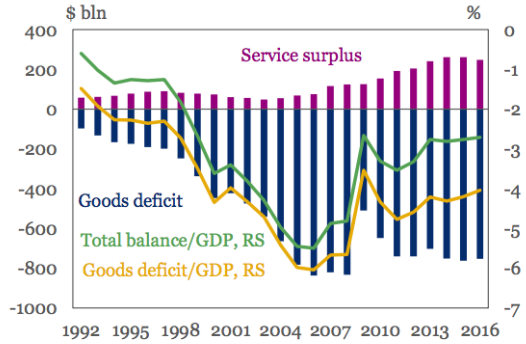
The prices of raw materials used in our business can fluctuate from time to time, and in recent years we have experienced periods of increased raw material costs. Changes in raw material prices, unavailability of adequate and reasonably priced raw materials or substitutes for those raw materials, or the inability to obtain or renew supply agreements on favorable terms can adversely affect our consolidated results of operations, financial position or cash flows. In addition, volatility and disruption in economic activity and conditions could disrupt or delay the performance of our suppliers and thus impact our ability to obtain raw materials at favorable prices or on favorable terms, which may adversely affect our business.

Consolidation of our customers and vendors could affect our results.

Customers and vendors in the foodservice, hospitality, travel, healthcare, energy, food processing and pulp and paper industries, as well as other industries we serve, have consolidated in recent years and that trend may continue. This consolidation could have an adverse impact on our ability to retain customers and on our margins and consolidated results of operations.

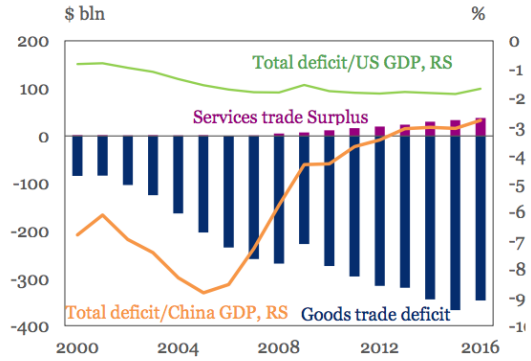
Risk – China vs. USA trade wars

Chart 1. US annual trade balance



Source: Haver

Chart 3. US trade balance with China, annual



Source: Haver

Who has been worst affected so far?

- The International Monetary Fund says an escalation of the tit-for-tat tariffs could shave 0.5% off global growth by 2020.
- There are signs that the trade dispute is already affecting the Chinese and US economies.
- Morgan Stanley has said a full-blown escalation of the trade dispute could knock 0.81 percentage points off global gross domestic product. This scenario would involve the US slapping 25% tariffs on all goods from both China and the EU, and similar measures imposed in response.
- Among companies, the car industry seems to have been the most affected so far. Major carmakers recently warned that changes to trade policies were hurting performance.
- Ford and General Motors have lowered profit forecasts for 2018, citing higher steel and aluminium prices caused by new US tariffs.
- There are also concerns that the trade war could hurt other aspects of US-China relations. Mr Trump recently accused China of manipulating its currency - a sign that the row could be spreading to foreign exchange markets.
- Smaller Asian countries further down the supply chain could also suffer. According to the Economist, 30% of the value of the goods China exports to America originates from third-party countries.
- Ultimately, China may not have as much firepower as the US to retaliate, given the US buys much more from China than it sells to them. This could mean it would find alternative ways to fight back such as making life difficult for American companies in China by increasing red-tape.

Risk – China vs. USA trade wars

BUSINESS NEWS OCTOBER 12, 2018 / 8:30 AM / A MONTH AGO

China auto sales post biggest drop in 7 years as growth engine stalls

Yilei Sun, Norihiko Shirouzu 6 MIN READ

BEIJING (Reuters) - China's car sales fell the most in nearly seven years in September, stoking concerns the world's biggest auto market could contract for the first time in decades this year amid cooling economic growth and a biting trade war.

BUSINESS INSIDER TECH | FINANCE | POLITICS | STRATEGY | LIFE | ALL PRIME | INTELLIGENCE

1,100 economists warn that Trump is repeating one of the biggest mistakes of the Great Depression

Bob Bryan May 3, 2018, 12:00 PM

CNN BUSINESS Markets Tech Media Success Perspectives Video

America's biggest allies and trade partners are promising to fight back against US tariffs that threaten to spark a global trade war.

The European Union, Canada and Mexico said Thursday that they will respond to new US tariffs on steel and aluminum with punitive measures targeting American products worth billions of dollars.

CBS NEWS NEWS ZIKA: CHILDREN OF THE OUTBREAK SHOWS LIVE

U.S. trade deficit reached a record high last year

MARCH 6, 2019 / 9:47 AM / CBS/AP

- The U.S. trade deficit reached a 10-year high of $621 billion last year, despite the Trump administration's attempts to reduce it
- The goods trade deficit with China – the difference between goods exported and imported – rose to $419.2 billion, the highest number on record
- Last year's acceleration in U.S. economic growth helped fuel Americans' appetite for foreign goods

Apple slides after one of its facial recognition suppliers cut its outlook, hinting at weak iPhone orders

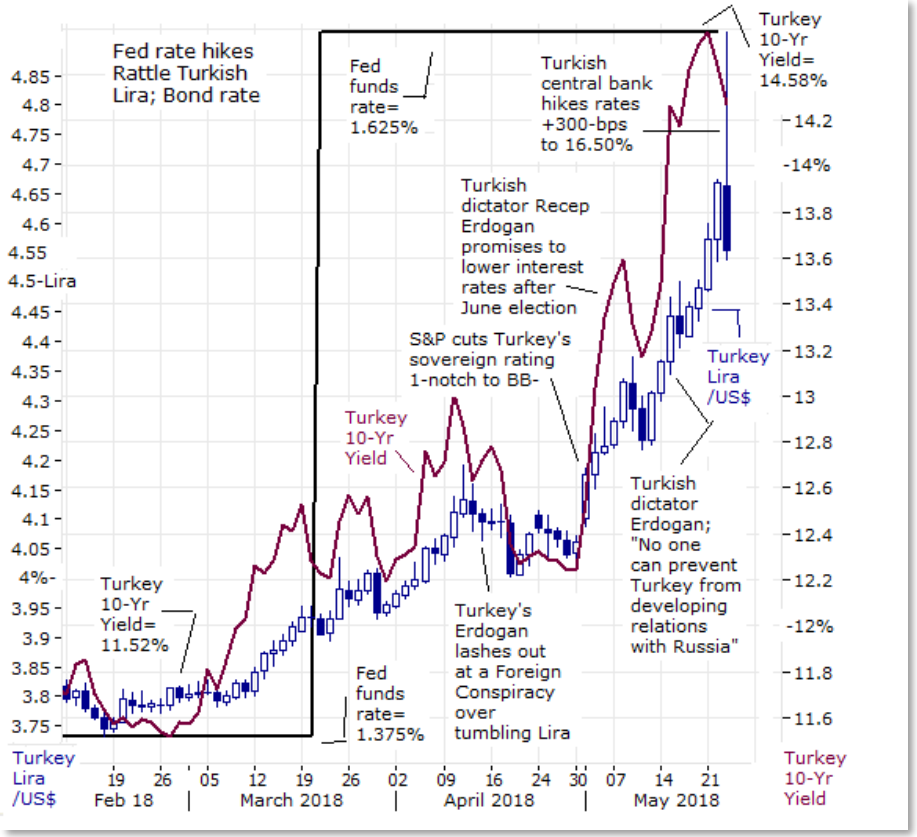
- One of Apple's facial recognition suppliers, Lumentum, reduced its outlook for the quarter, citing a reduced shipment request from one of its biggest customers.
- Apple shares slide on the news.
- The announcement adds to the speculation that Apple is reducing production of its latest iPhones.

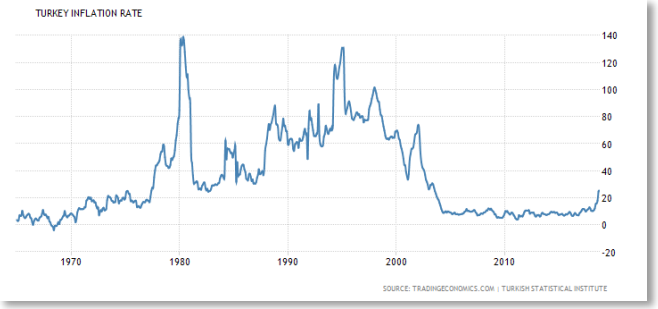
Lauren Feiner

Published 9:17 AM ET Mon, 12 Nov 2018 | Updated 4:27 PM ET Mon, 12 Nov 2018

CNBC

Risk - Turkey





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Economics

Turkey Enters First Recession in a Decade as Elections Loom

By Cagan Koc

10 marca 2019 20:21 CET *Updated on 11 marca 2019 09:19 CET*

Risk - Venezuela

CNN Money Markets Economy Companies Tech Autos India Vid

Yet the government-owned oil company, PDVSA, has pumped less and less oil for the last few years because of corruption, crumbling infrastructure and a massive debt crisis.

Meanwhile, hundreds of thousands of Venezuelans have fled the country of 30 million in recent years. Those who can't leave are suffering from food and medical shortages, rampant crime and soaring prices on all types of goods. Inflation is expected to shoot up 13,000% this year, according to the IMF.

Venezuelan President Nicolas Maduro is expected to tighten his grip of power after the April 22 election. He has already barred prominent opposition candidates from running because their political parties didn't participate in gubernatorial elections last year. The Trump administration, along with several other governments, has labeled Maduro a dictator. Maduro claims the U.S. and others are waging an economic war against Venezuela.

MarketWatch

ion and a weak liquidity position.

The big problem is that under Hugo Chávez, who served as president from 1999 to 2013, and the current President Nicolás Maduro, Venezuela has "failed to use either the money from [oil] exports or the loans from China and Russia to reinvest in new wells," said James Williams, energy economist at WTRG Economics.

"Their policies have chased most of the oil and gas investors out of the country," he said.

Williams said many of the service companies won't do business with Venezuela or have scaled back their operations, such as Schlumberger Ltd. SLB, +0.23% and Halliburton Co. HAL, +0.65%

In April of last year, Schlumberger said it would reduce activity in the country, partly because of "insufficient payments received in recent quarters."

Venezuela's oil production has fallen by about a million barrels a day since Chávez was elected, said Williams.

"The primary reason is the failure to invest enough of the proceeds in drilling," he said. "Lack of money and lack of infrastructure improvements have led to further cuts in production. In other words, there has been failure at every level to support Venezuelan production."

Given all of that, the nation's oil output is likely to "continue to deteriorate," said Williams.

Risk - Argentina

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MARKET NEWS MARCH 2, 2018 / 10:55 PM / 3 MONTHS AGO

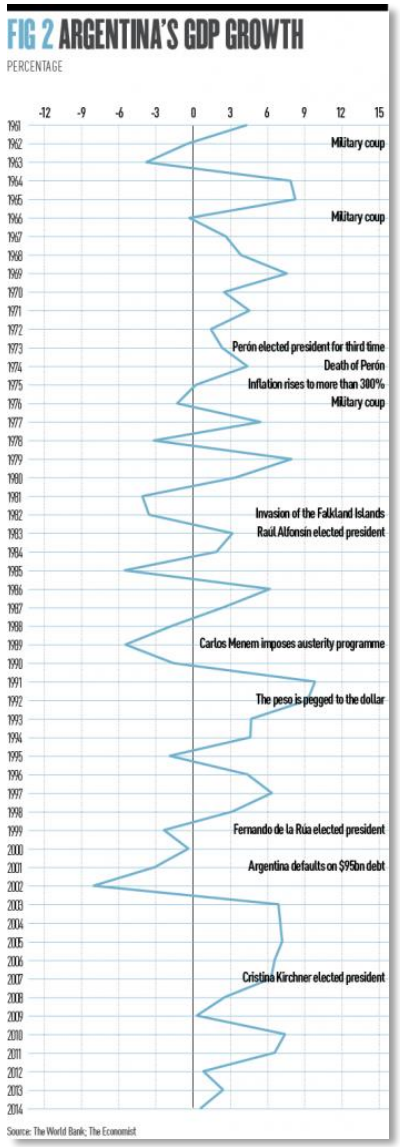
Economists hike Argentina 2018 inflation forecasts, slash growth

Reuters Staff 2 MIN READ

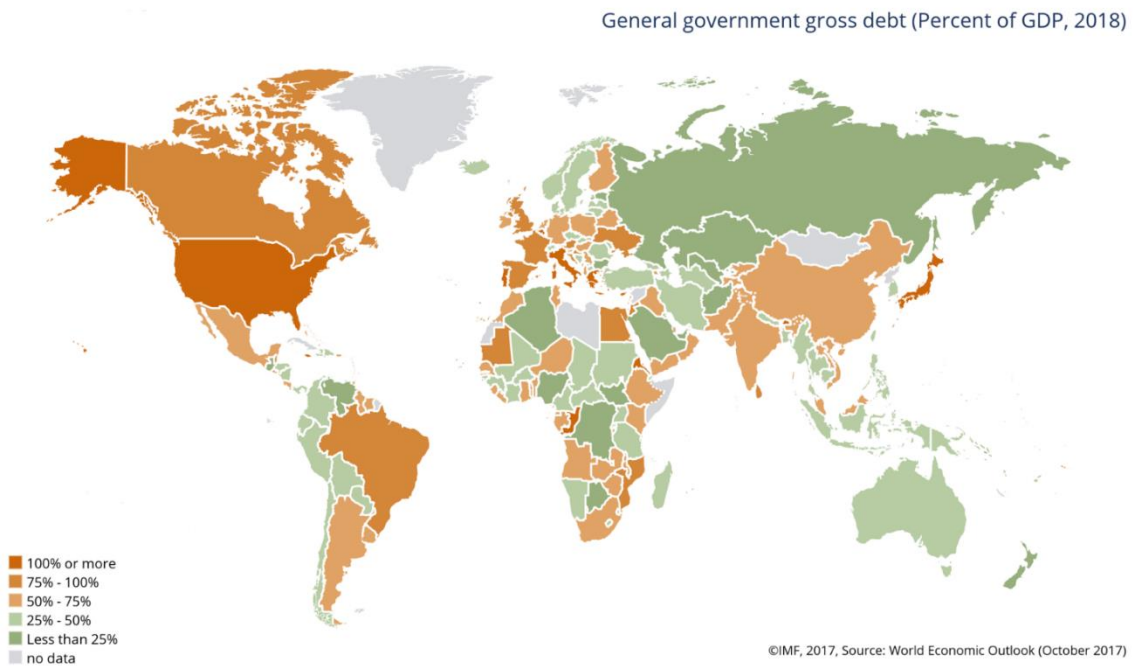
BUENOS AIRES, March 2 (Reuters) - Economists revised expectations for inflation in Argentina upward while slashing growth forecasts in a monthly central bank poll released on Friday, highlighting the challenges President Mauricio Macri has faced in normalizing the economy.

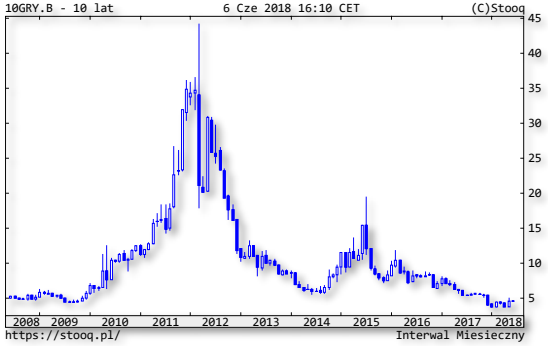
The poll of 54 participants found median 2018 inflation expectations of 19.9 percent, up from 19.4 percent last month and above the government target of 15 percent. In the prior poll, expectations had jumped from 17.4 percent after the government loosened its inflation targets in late December.

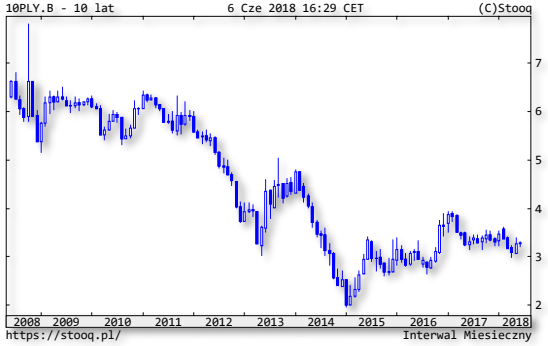
That move, followed by two rate cuts in January, fueled concerns about central bank independence and the government's commitment to fighting inflation at the potential expense of growth. The central bank held its policy rate steady at 27.25 percent in each of its two February decisions.

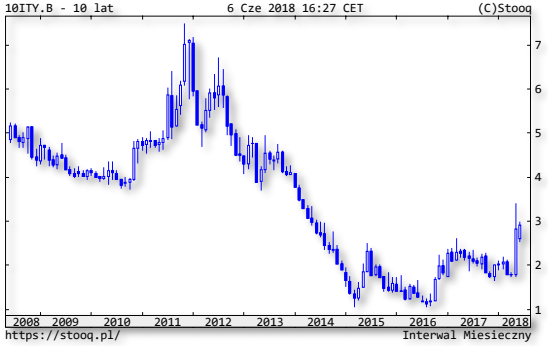


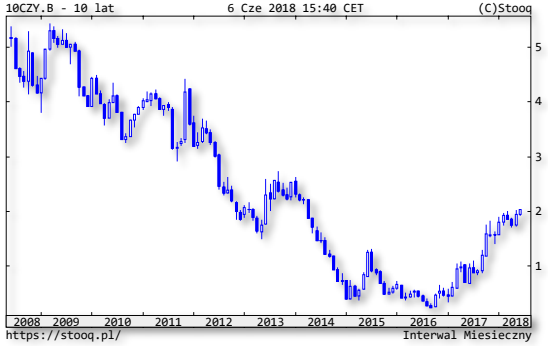
Risk – Gov. debt to GDP





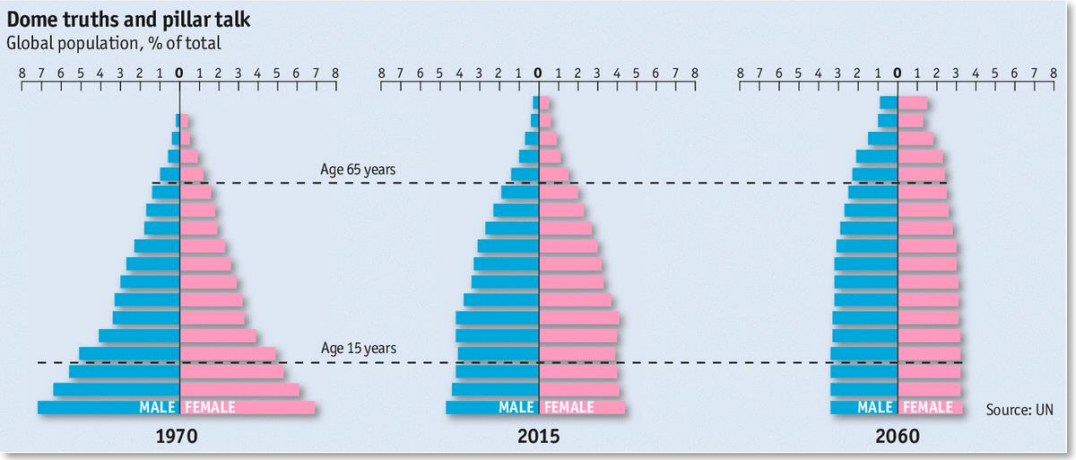


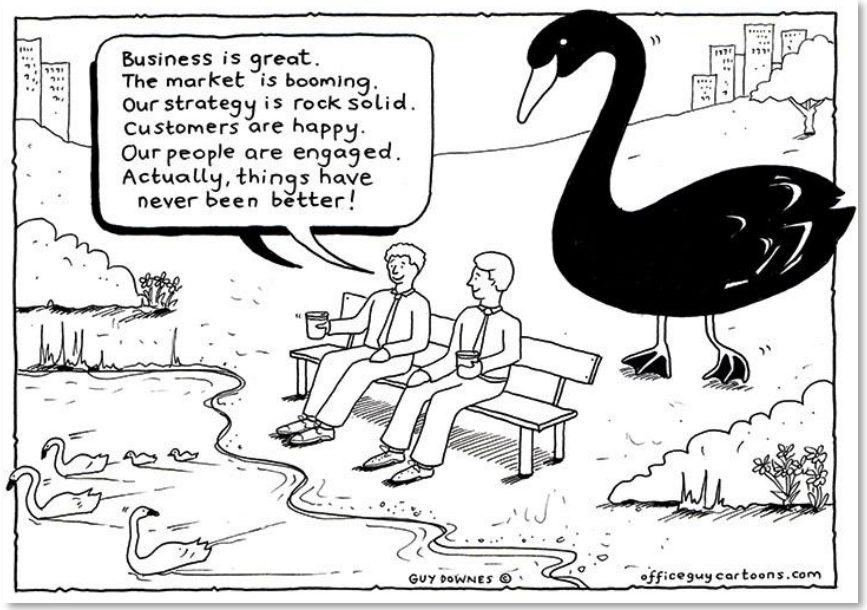




Risk – others


BREXIT?


Dome truths and pillar talk
Global population, % of total
8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8
Age 65 years
Age 15 years
MALE
FEMALE
1970
2015
2060
Source: UN


Business is great.
The market is booming.
Our strategy is rock solid.
Customers are happy.
Our people are engaged.
Actually, things have never been better!
GUY DOWNES ©
officeguycartoons.com

RISK MANAGEMENT

In modern world, risk management is seen as a partner of sales and production

The main steps in a **risk management** process are:

- Identification
- Evaluation (measurement)
- Treatment
- Monitoring

Risk management is primarily concerned with **reducing earnings volatility** and **avoiding large losses**.

CREDIT RISK

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**, we have following types of credit risk:

- **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.

CREDIT RISK

Because of **the scope**, the credit risk could be divided into:

- **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.

CREDIT RISK ASSESSMENT

There are three characteristics that define credit risk:

- 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:

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

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

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

CREDIT DECISION

avoid unnecessary bureaucracy and delays

PRINCIPLES OF THE CREDIT DECISION

- 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

CREDIT DECISION

How to make the good credit decision?

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

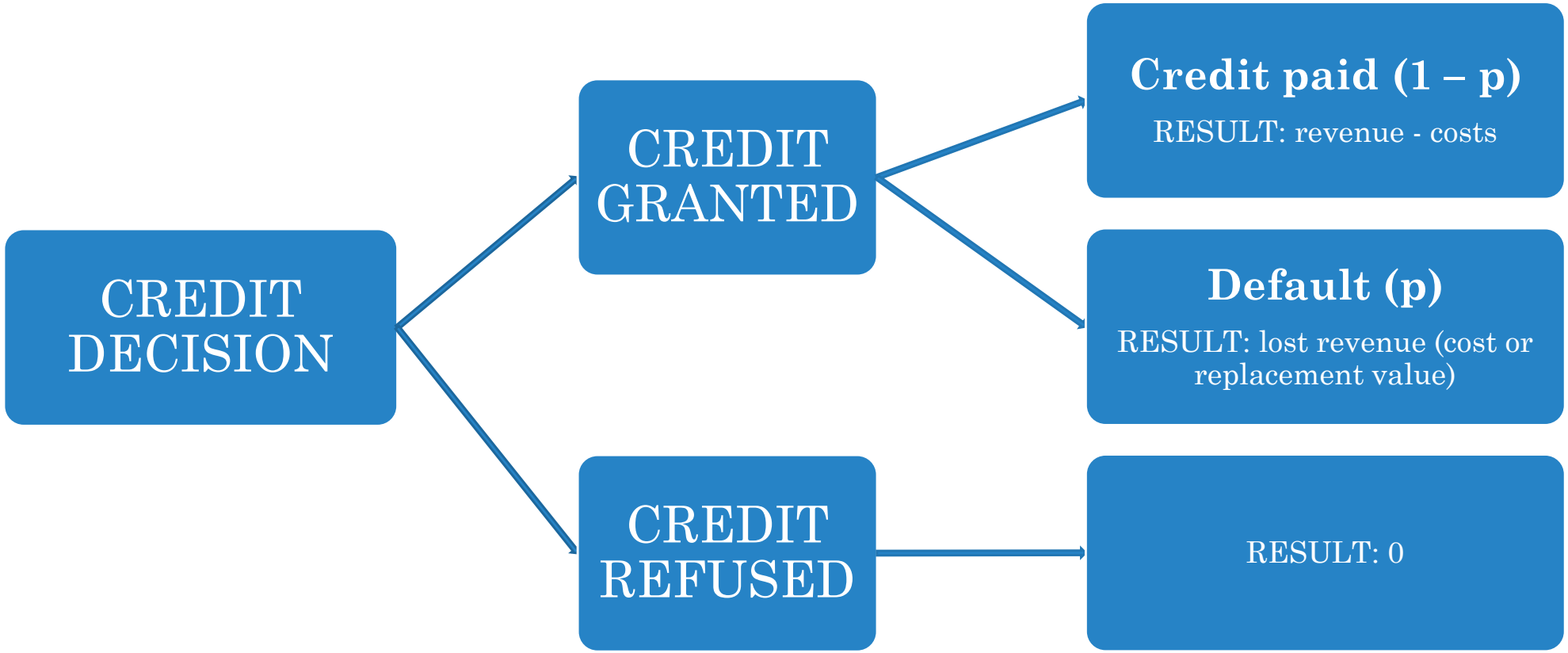
TYPE I

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



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) x (1 - p) – PV(100) x p = 0

20 – 20p = 100p

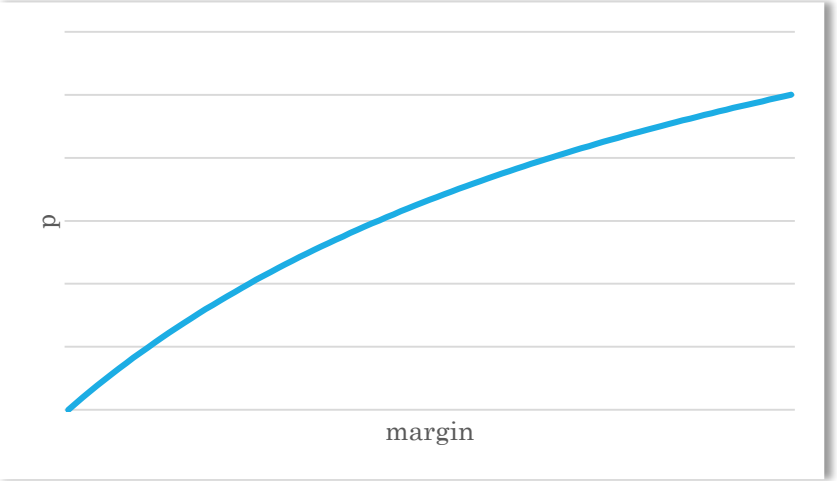
20 = 120p

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

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 DECISION ASSESSMENT

What is the level of profitability in your company?

PV(Revenue – Costs) x (1 – p) = PV(lost revenue) x p
Jeżeli sprzedaż 100 oraz marża 20 to **20 * 0,833 = 100 * 0,167 = 16,66**
- Ryzyko kredytowe wyrażone liczbowo jest równe prawdopodobnej płatności od klienta -

<u>Przy danej rentowności:</u>

Jakie musi być „p" przy danej marży abyśmy zgodzili się sprzedać?

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

<u>Przy danym „p":</u>

Jaka musi być marża przy danym „p" aby pokryć ryzyko kredytowe?

– wzór: marża (Revenue – Costs) = (sprzedaż * p) / (1 – p)

- Przy jakim poziomie rentowności ryzyko kredytowe wyrażone liczbowo jest równe potencjalnemu zyskowi (marża księgowa skorygowana o prawdopodobieństwo jej realizacji)
- Najpierw wyliczamy „p" i patrzymy czy nasza rentowność pozwala sprzedać danemu klientowi, na którym „robimy" taką marżę

CREDIT RISK MANAGEMENT

- 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: identification, evaluation and management. That is, the cause of the risk has to be identified, the extent of the risk has to be evaluated and decisions made as to how this risk is to be managed.

CREDIT RISK MANAGEMENT

Managing cash-generating assets 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**. This in turn has a significant impact on the debt collection department and challenges related to debt collection.

RULES:

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

CREDIT RISK MANAGEMENT

Customers want unlimited trade credit, but by assigning a credit line, the company needs to make analyses that allow it to be **allocated only to companies that are likely to repay it**. As a result, **credit department juggles** between two types of risk:

- Granting a credit line to a customer who is unable to repay it
- Denying a credit line to a company that is able to pay on time

The reasons for some credit decisions can not be fully disclosed due to the confidentiality of the data (e.g. the financial statements disclosed by the customer)

Management support for the credit department is crucial to maintaining good relationships with other departments within the company

Credit risk management

Credit policy

Procedures

Management

Proces controls

Monitoring

Organization

FINANCIAL LIQUIDITY AND CREDIT RISK

Financial liquidity is the ability of an enterprise to pay its current liabilities and expenses

- **Property aspect:** the ability to convert assets into cash as quickly as possible and without losing their value
- **Asset-equity aspect:** the ability of an enterprise to timely meet its short-term liabilities

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. 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**.

PAYMENT CREDIBILITY AND CREDITWORTHINESS

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

Creditworthiness is based on:

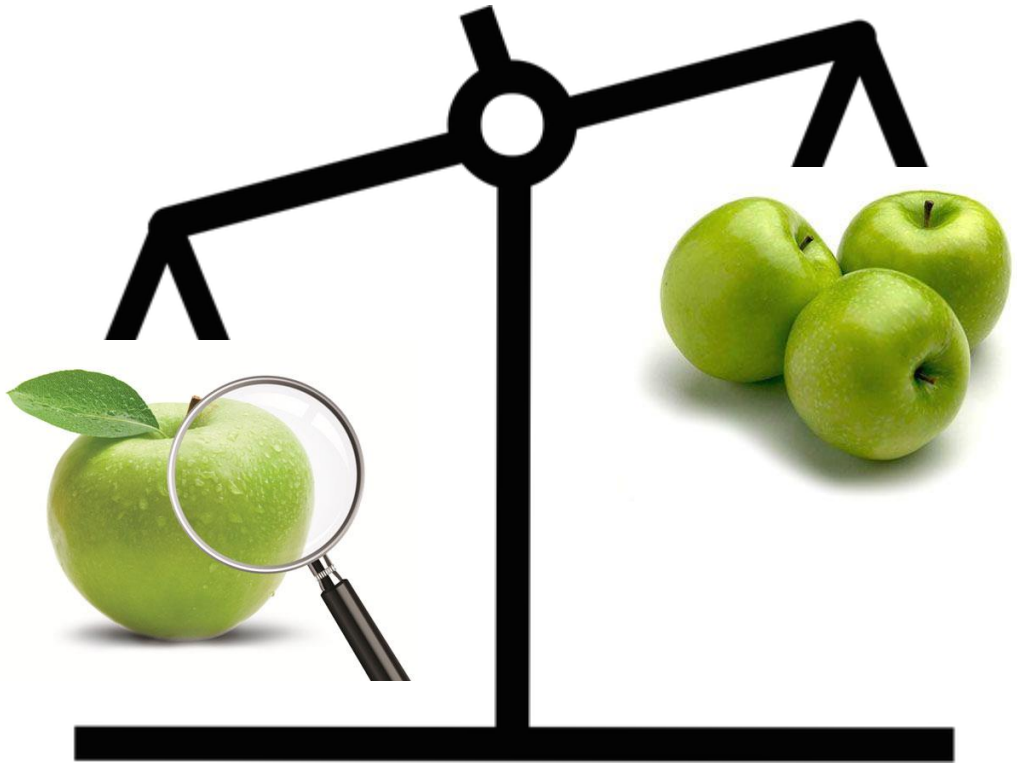
- **ability to repay its obligations** (income approach): profitability and liquidity (indicators)
- **status and value of the entity's assets** (property approach): transferability (selling) of assets without loss of value
- **business risk** (objective, subjective, internal, external)

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?**



Corporate credit risk – concepts & definitions

THE TASKS OF CORPORATE CREDIT MANAGEMENT

I. Credit & collection departments – organization, tasks and wor allocation
II. Credit policy – guideline for Credit Manager
III. Credit risk monitoring – key performance indicators (KPI)
IV. Corporate credit management – strategies and technics

CREDIT & COLLECTION DEPARTMENTS

Credit risk assessment and debt collection departments can be located in other organizational divisions of the company.

The customer lending function is a typical financial function and should naturally report to the CFO or Treasurer.

Debt collection is a kind of extension of accounting (or a specialized department dealing with invoicing - billing). Therefore, the reporting line for debt collection runs in the direction of the financial controller.

In the case of **separate placement of both departments** in the company's structures, the information flow is extended and causes a prolonged time of solving problems.

To prevent this, it is **usually recommended to combine both functions** in one department.

In addition, it is desirable to **also include the order management function from customers**, which is usually assigned to the sales department.

The implementation of this model means that a significant part of communication with the client is coordinated in one department. This results in **more effective communication and faster solving of problems**.

Credit Policy

CREDIT POLICY - ESSENCE

Credit policy imposes consistency in approving sales with deferred payment terms (credit limits). In this regard, it should first of all explain:

MISSION	• why an enterprise grants credit to its customers • describing the applied balance between the sale and the acceptable risk of bad debt
RESPONSIBILITIES	• client blocking privileges (with possible combinations / changes) • a path to approve a new credit limit if it exceeds
RULES	• principles of credit risk transfer (use of collateral for credit risk: guarantees, insurance, letter of credit) • applied automated rules have to be explained
CONDITIONS	• can state the forms of payment that a customer is allowed if credit is not granted, or if the amount requested is greater than the credit granted

Credit Policy – additional issues

Additional issues defined by credit policy:

- Terms of sale (payment terms, discounts, etc.)
- Debt collection methodology (order blocking, urgency, support of other departments, etc.)
- Cooperation with external entities (debt collection companies, law firms)
- Confidentiality of information
- Dealing with credit balances in receivables or customers' liabilities
- Proceeding in case of bankruptcy (or other credit events)
- Handling of disputed payments
- Distribution of credit policy updates
- Applied customer debt assessment systems (collectable, bad debts, uncollectable)
- Proceeding and securing of difficult customer receivables (late payers)

Credit Policy - review

- The specific events and periods during which the review should take place should be indicated
- The amount of uncollectible receivables may cause a review of the applicable credit policy
- A situation in which a customer's credit limit has been completely erased (sudden rating change, delay or no payment, etc.)

CREDIT POLICY - SUMMARY

- There is a high probability that scenarios not anticipated in the existing credit policy will occur.
- Policies should be updated to cover the aforementioned situations.
- With corporate development (new products, M & A, change of business, etc.), credit policy also needs to change.
- Credit policy is not intended to be any situation (scenario), as it will cause unnecessary complications and increase the amount of space. Credit policies should describe the most common and repetitive situations in an enterprise.

CREDIT MONITORING – WHEN & HOW?

INCREASING THE CREDIT LIMIT

One-off small order (separate line or temporary increase)

- Review requirement: depending on the size of the approved limit

Constant small order

- Review requirement: limited, depending on approved limit

Significant increase for a known customer

- Review requirement: extended or full

Significant increase for new customer

- Review requirement: full with collateral

CREDIT MONITORING – WHO?

RISKY CUSTOMERS - frequent monitoring of every possible indicator

- New business
- Distributors and retailers with newly-granted credit increases
- Companies in transition (restructuring, M&A, change of business model, etc.)

CUSTOMERS often applying for a change in credit limit - pay attention to:

- The history of cooperation (payments)
- Profitability of sales

CREDIT MONITORING

- Credit risk assessment determines the frequency and type of credit control types used
- The frequency and type of credit checks depend on the customer, although they can be applied to customer groups divided according to specific segmentation criteria.
- The most common practice is to monitor receivables aging and the receivable duty cycle (DSO) for a particular customer

Other areas or information used to monitor credit risk:

- Public information
- Visits to the customer
- Change of credit limit
- Daily conversation with the clients
- Changes in acquired credit reports (D&B, CreditRiskMonitor)
- Data mining
- Unused early payment option (discount, rebate)
- Exceptions to regular payment terms
- Rumors and gosips heard in the industry

CREDIT MONITORING - KPI

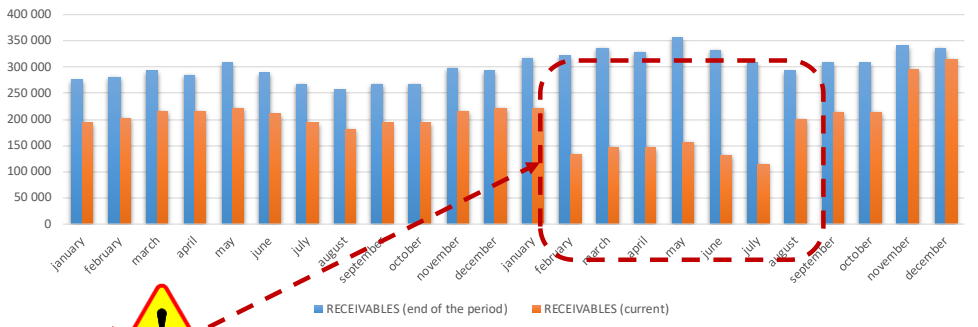
	A	B	C	D	E	F	G	H	I
MONTH	**days in month**	**RECEIVABLES (beginning of the period)**	**Credit SALES**	**RECEIVABLES (end of the period)**	**RECEIVABLES (current)**	**CEI (%)**	**DSO**	**best DSO**	**ADD**
december				304 880					
january	31	304 880	185 400	276 040	193 640	**72%**	**46**	**32**	**14**
february	28	276 040	201 880	280 160	201 880	**72%**	**39**	**28**	**11**
march	31	280 160	255 440	292 520	214 240	**76%**	**36**	**26**	**10**
april	30	292 520	210 120	284 280	214 240	**76%**	**41**	**31**	**10**
may	31	284 280	243 080	309 000	222 480	**72%**	**39**	**28**	**11**
june	30	309 000	238 960	288 400	210 120	**77%**	**36**	**26**	**10**
july	31	288 400	222 480	267 800	193 640	**77%**	**37**	**27**	**10**
august	31	267 800	185 400	255 440	181 280	**73%**	**43**	**30**	**12**
september	30	255 440	214 240	267 800	193 640	**73%**	**38**	**27**	**10**
october	31	267 800	218 360	267 800	193 640	**75%**	**38**	**27**	**11**
november	30	267 800	230 720	296 640	214 240	**71%**	**39**	**28**	**11**
december	31	296 640	280 160	292 520	222 480	**80%**	**32**	**25**	**8**
january	31	292 520	213 210	317 446	222 686	**67%**	**46**	**32**	**14**
february	28	317 446	232 162	322 184	132 162	**54%**	**39**	**16**	**23**
march	31	322 184	293 756	336 398	146 376	**60%**	**36**	**15**	**20**
april	30	336 398	241 638	326 922	146 376	**58%**	**41**	**18**	**22**
may	31	326 922	279 542	355 350	155 852	**56%**	**39**	**17**	**22**
june	30	355 350	274 804	331 660	131 132	**60%**	**36**	**14**	**22**
july	31	331 660	255 852	307 970	113 004	**59%**	**37**	**14**	**24**
august	31	307 970	213 210	293 756	199 408	**71%**	**43**	**29**	**14**
september	30	293 756	246 376	307 970	213 004	**71%**	**38**	**26**	**12**
october	31	307 970	251 114	307 970	213 004	**73%**	**38**	**26**	**12**
november	30	307 970	265 328	341 136	295 664	**84%**	**39**	**33**	**5**
december	31	341 136	322 184	336 398	314 728	**94%**	**32**	**30**	**2**

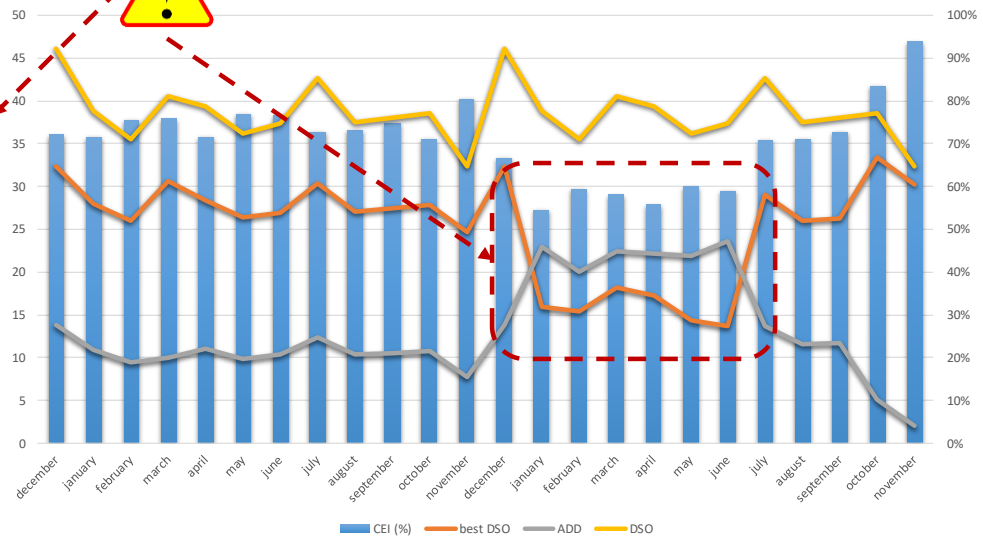
$$Collection\ Effectiveness\ Index\ (CEI) = \frac{B + C - D}{B + C - E}$$

$$best\ DSO = \frac{E * A}{C}$$

$$Days\ Sales\ Outstanding\ (DSO) = \frac{D * A}{C}$$

$$Average\ Days\ Delinquent\ (ADD) = \text{DSO - best DSO}$$





Credit risk management

Techniques

- SELECTION
- LIMITATION
- DIVERSIFICATION
- CREDIT ENHANCEMENT

Strategies

- VALUE-DRIVEN
- IMMEDIATE PERFORMANCE-DRIVEN
- PRODUCTION-DRIVEN
- UNFOCUSED

The tasks of Corporate Credit Management

CREDIT ASSESSMENT METHODOLOGY – INTRODUCTION

I. First and periodic creditworthiness assessment
II. Assessment of credit rating system
III. 5C/6C, CAMPARI (ICE), 5P, LAPP, FAPE concepts
IV. Credit rating models - concepts and classification

CREDITWORTHINESS ASSESSMENT

Simplified method - confidence building

- Detailed analysis is time-consuming and expensive
- Gradual gaining of trust
- Not always possible; without detailed analysis it is difficult to determine the level of trade credit
- We only know the customer is in trouble when we see late payments

Detailed creditworthiness assessment

- The sales value to the contractor is very high
- It is used by large companies to evaluate their customers
- Companies sign contracts for orders that are relatively large for them

CREDITWORTHINESS ASSESSMENT

The creditworthiness assessment should be divided into three steps:

- First creditworthiness assessment

- Recurring creditworthiness assessment, divided further into:

Increase of the credit lines in line with increase of trust between the business partners, and

Cyclical creditworthiness assessments

- Creditworthiness assessment system review

FIRST CREDITWORTHINESS ASSESSMENT

First creditworthiness assessment is processed for:

- New customers
- Known customers, however without any cooperation for the last few years

The creditworthiness assessment should answer the following questions:

- Does the customer's financial standing strong enough to allow for uninterrupted payment for the obligations? - CREDITWORTHINESS
- Is the customer trustworthy (fair)? - CREDIBILITY

The assessment is based on **the creditworthiness assessment models**

PERIODIC CREDITWORTHINESS ASSESSMENT

TARGET: to check whether the good enough financial standing of the existing customers has not been changed adversely

SCOPE: more general than first assessment and focused on the following:

- monitoring of the latest financial statements in order to spot the potential threats and risk of insolvency
- monitoring the current reports coming from the business intelligence agencies and other screening the payment behaviors and other important business characteristics
- monitoring other important factors, like changes in the management etc.

PERIODIC CREDITWORTHINESS ASSESSMENT

STRATEGY: minimize the potential losses, and from the other hand be cost effective

The strategy may be based on the following pillars:

- the large customers - reviewed on semi-annual basis
- the mid-size companies review every 3 years
- small customers reviewed randomly based on general economic factors, usually coming from changes in the certain branch etc.

NOTE: the customers' portfolio structure

CREDITWORTHINESS ASSESSMENT SYSTEM REVIEW

- Like every other risk management system, the credit risk management should be verified periodically in order to check its effectiveness.
- The system built today could be not efficient in the next three years of decade.
- The periodic review of the creditworthiness system should challenge its adequacy compare to the current economical conditions. Consequently this should trigger the appropriate changes.

CREDITWORTHINESS ASSESSMENT

The main steps in a **risk management** process are:

- Identification
- Evaluation (measurement)
- Treatment
- Monitoring

To **identify** where the risk lays, it is advisable to determine the method of **measurement**, i.e. to find the appropriate **CREDIT RISK ASSESMENT MODEL**

5C/6C

A widely used methodology is to evaluate an enterprise based on the **5C/6C** in English banking:

- Capacity / Cash Flow
- Capital
- Collateral
- Conditions
- Character
- Confidence (as a trust – recently added to the analysis)

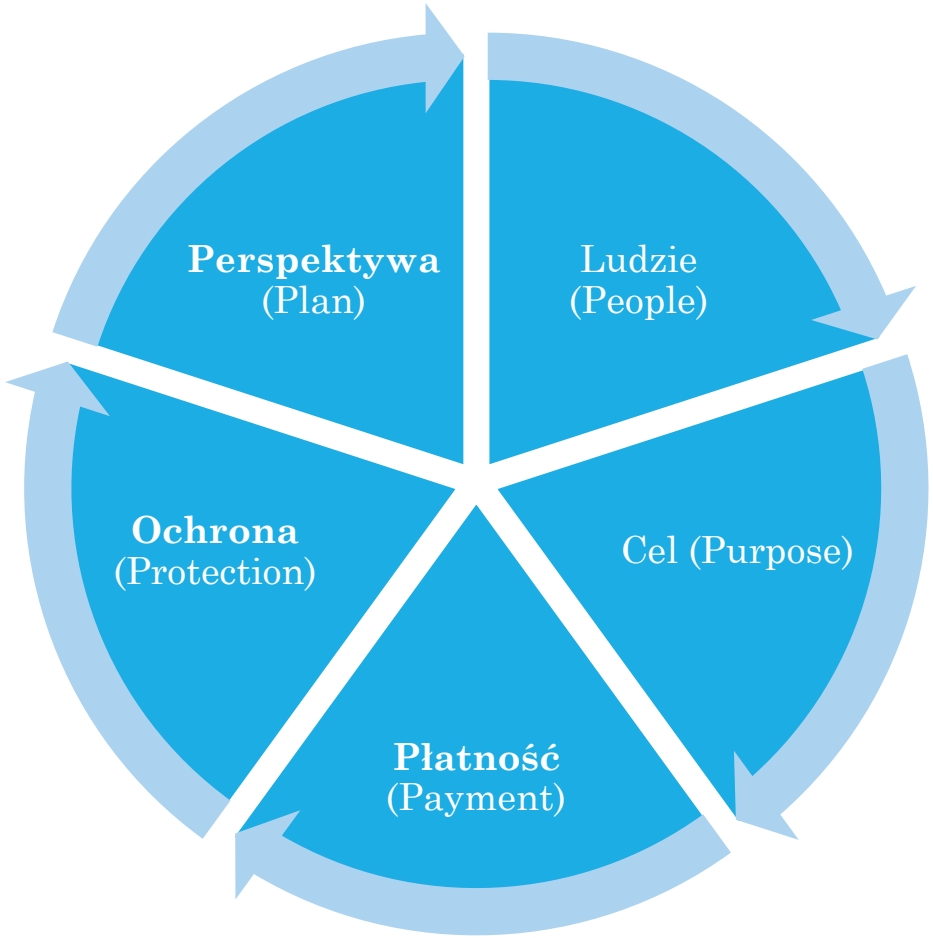
CAMPARI (ICE)

Character	• osobowość firmy, kredytobiorcy
Ability	• zdolność
Means	• środki
Purpose	• cel
Amount	• kwota
Repayment	• spłata
Interest	• odsetki
Income	• dochód
Collateral	• zabezpieczenie
Extras	• pozostałe

5P

The **5P's** is another method of evaluating credit applications. It was developed by the Federal Reserve Center (Fed 2004) which consists of:

- **People:** borrower's history of being and timely honoring financial obligations?
- **Purpose:** how the borrower is going to use the funds.
- **Payment:** timing of the borrower's receipt of funds (cash flow)
- **Protection:** collateral and other secondary sources of loan repayment.
- **Prospective (Plan):** How will the loan be supervised?



LAPP

LAPP Method developed by Benz (1979) is used more for evaluating corporate credit applications than individual borrowers. LAPP is an abbreviation for the following:

- **Liquidity:** which measures the ability of the firm to repay its short-term obligations? Banks use quick ratio or liquidity ratio to measure the liquidity of the firm.
- **Activity:** which measures the size of the firm and its operations, some percentages are used, such as asset turnover, inventory turnover, average collection period, and average payment period.
- **Profitability:** which measures how profitable the firm is. Some ratio is used such as return on assets (ROA), return on equity (ROE), gross or profit margin.
- **Potential:** this measures the resources and strength the firm has, such as financial resources, human resources, management level, and other strength the firm might have.

FAPE

- This method depends on **analysing the financial records** of the applicants and on its past records of credit.
- The bank **analyses financial statements such as the income statement, balance sheet, cash flow statement** and from these statements computes some ratios, such as the liquidity ratio and profitability ratios such as: ROA, ROE, and operation ratios such as Asset Turnover ratio, and other ratios such as: EPS, Debt Ratio etc.
- **From these ratios the credit officer can evaluate** the firm and decide if it is credit worthy or not.
- This method is **usually used in addition to some of the previous methods** and banks do not depend on it alone, because some information is lacking, especially about the customer's attitude and past experience (Credit Records).

CREDIT RATING MODELS

- **Qualitative methods** are based on the observation of phenomena, factors, cases and cause-and-effect relationships that cannot be quantified. The effect of such methods is usually the sequence of recipients ranked according to the increasing or decreasing risk. The solutions obtained by these methods are highly subjective.
- **Quantitative methods** are based on the measurable data. They include a wide range of risk analysis methods from indicator analysis to econometric models. Quantitative methods give objective results but do not consider important (sometimes) qualitative data. The results are also inaccurate in the long run, so the calculations need to be repeated from time to time.
- **Mixed methods** use both measurable and non-measurable data. These types of methods are most commonly used in the business practice.

CREDIT RATING MODELS

Financial models:

- Financial structure (Merton model, KMV model)
- Cash flow (Gambler's ruin, Cash-flow simulations)
- Market implied (Reduced-form models, Bond, derivative and equity prices)

Empirical data based models:

- Statistics (Linear regression, Logistic regression, Additive models)
- Artificial intelligence (Neural networks, Support vector machines, Kernel-based learning)
- Machine learning (Nearest neighbors, Decision trees, Graphical models

Expert models:

- expert techniques (expert system, expert scorecard)
- expert judgment (expert judgment of probability of bankruptcy, expert judgment)

Credit assessment methodology – introduction

CREDIT RISK SIGNALS & CREDIT EVENTS

I. Internal causes of increased credit risk
II. External causes of increased credit risk
III. Specific factors in credit worthiness assessment (branch, size and region)
IV. Credit red flags and credit events

Reasons and phases of bankruptcy

Investigations into the causes of corporate bankruptcy lead to the conclusion that, in most cases, **insolvency is not an accidental event but a result of the deteriorating financial situation** of the enterprise and may be foreseen even several years earlier.

The most notable qualitative corporate failure prediction model is **Argenti's A score model**. Argenti suggested that the failure process follows a predictable sequence:

- **Defects.** Companies approaching bankruptcy mostly have some common defects in their performance, which are obvious well ahead of the actual failure.
- **Mistakes.** Because of these mistakes accumulation, the company can make a fatal mistake, which would lead to bankruptcy.
- **Symptoms.** Mistakes made by the company's management reveal some known symptoms of the upcoming insolvency: deterioration of indicators, lack of cash. Usually, these symptoms appear during last two or three years of the process that leads to insolvency, which, in its turn, lasts from five to ten years.
- **Bankruptcy.** The final stage in which the bankruptcy and liquidation of the enterprise takes place.

Warning indicators (internal factors)

- Autocratic management
- Ineffective communications
- Neglect of human resources
- Inefficient compensation and incentive programs
- Company goals not achieved
- Deteriorating business from established clients and new prospects
- Inadequate analysis of markets and strategies
- Lack of timely financial information
- History of failed expansion plans
- Uncontrolled or mismanaged growth

Warning indicators (external factors)

- General economy
- Unfavorable legislation
- Interest rate fluctuations
- Labor unrest
- Labor cost increases
- Competition
- Litigation
- Market decline
- Raw material cost increases

Warning indicators (operational)

- Lack of both short and long-term planning and forecasting
- Quality control problems, such as increased returned goods and customer complaints
- Late or slow delivery
- Increase in fixed costs relative to revenues
- Management and employee turnover
- General employee dissatisfaction and performance
- Employee layoffs
- Declining revenues per employee
- Trade credit difficulties and restrictions
- Failure to take purchase and other cash discounts
- Delay in returning telephone calls
- Delay in submitting financial statements to banks, lenders, and suppliers
- Board of Directors resignations
- Board of Directors failure to diligently exercise its oversight function
- Return of the "retired" founder to a visible management position
- Failure to adapt to new technologies

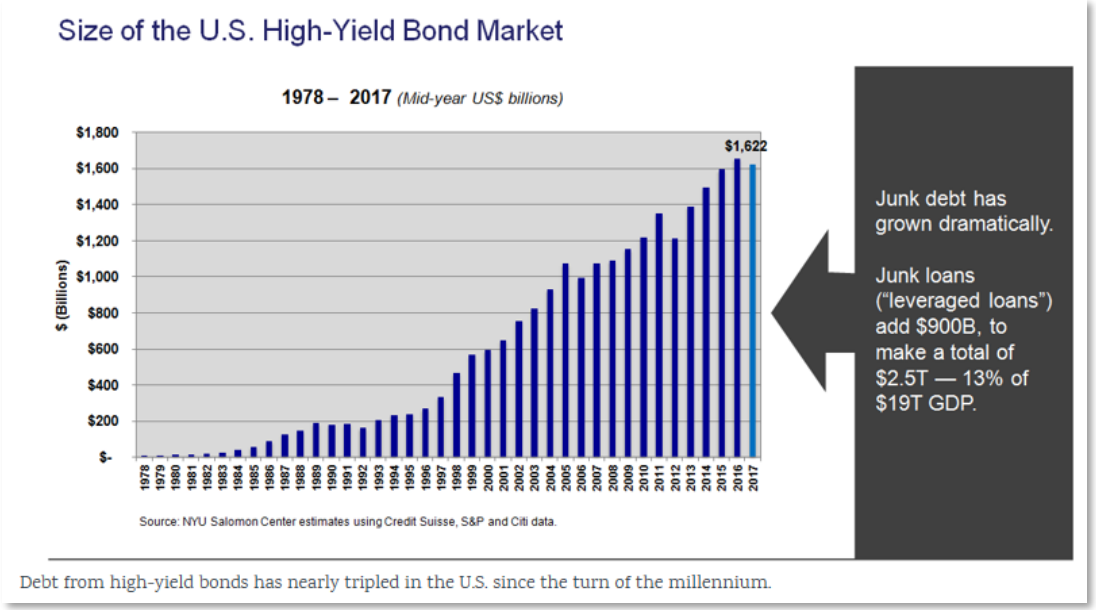
Warning indicators (financial)

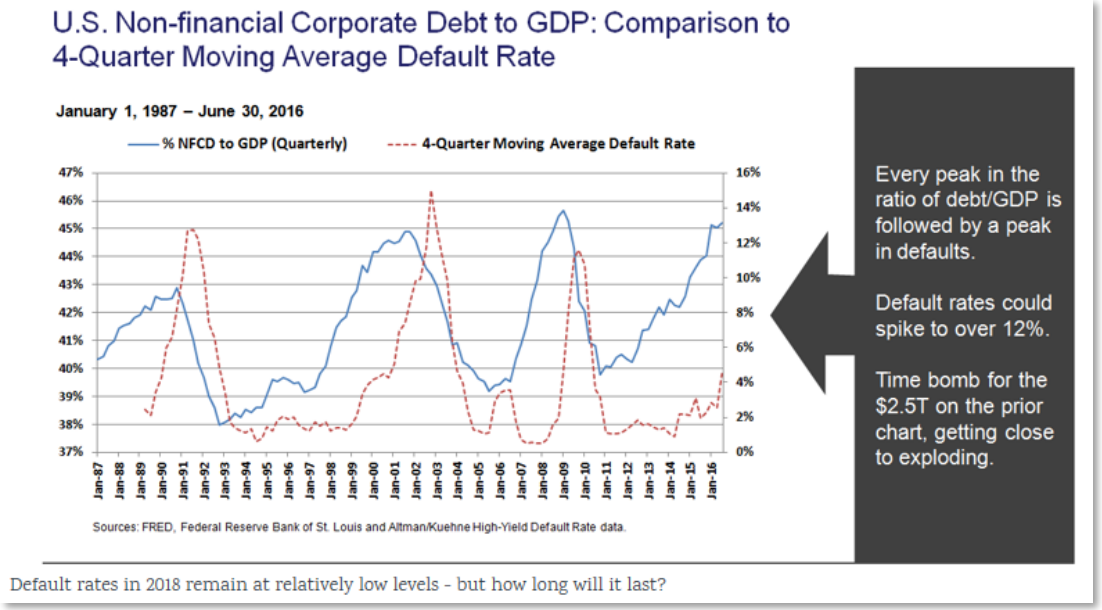
- significant decrease in profit or increase in loss
- falling financial liquidity and related loss of financial cover (solvency)
- visible increase in demand for loans and disruptions in their repayment
- increase in the cost of financial operations, especially the interest paid
- increasing liabilities towards public and legal suppliers and institutions, including overdue ones
- financing of current activities by discount of invoices and bills of exchange and sale of fixed assets at a lower price
- increase in the state of unfinished production and stocks of goods that are difficult to sell
- freezing of funds in unfinished investments in time

Warning indicators (financial)

- a large increase in receivables in terms of the amount or percentage
- decrease in current assets (in percentage terms) relative to total assets
- deterioration in working capital
- large increase in reserves
- disproportionate increase in current debt
- significant increase in long-term debt
- the presence of debt to employees or owners
- falling sales
- a disproportionate increase in the overall cost of sales compared to sales
- operating loss and increasing level of assets relative to sales

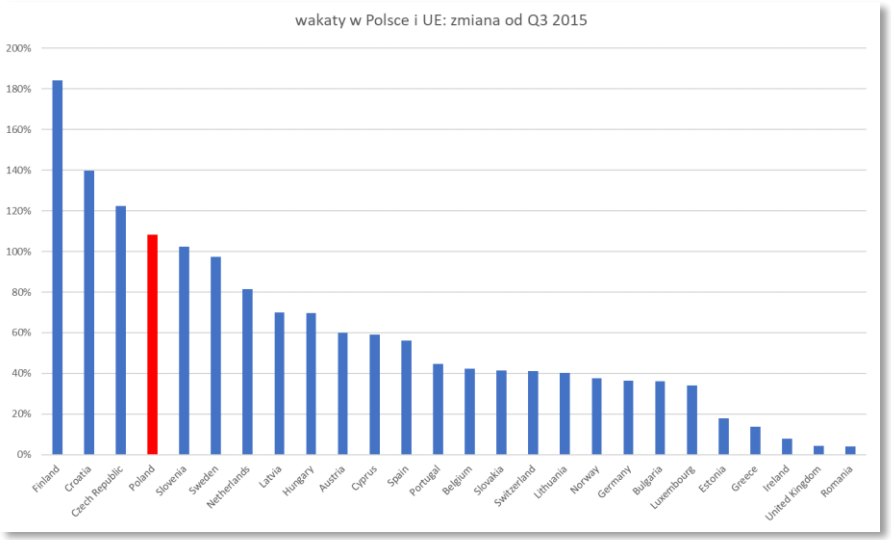
Warning indicators - examples

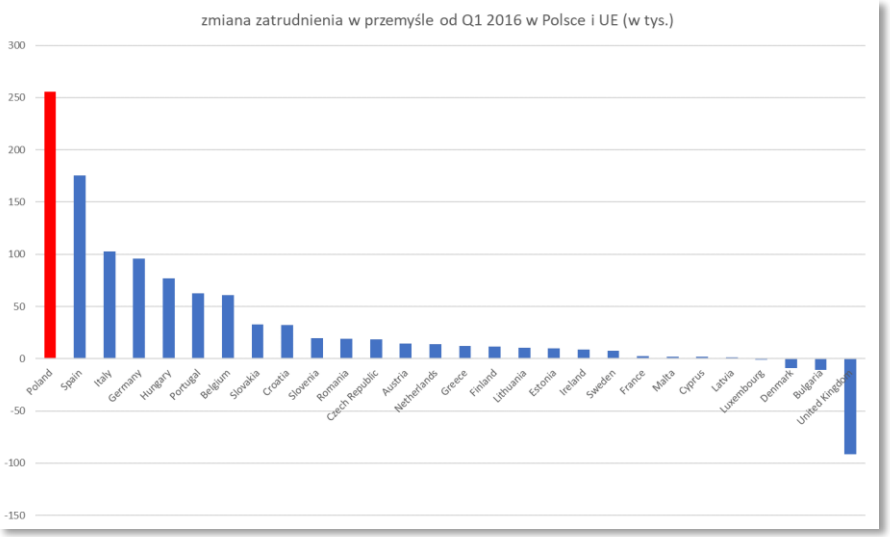




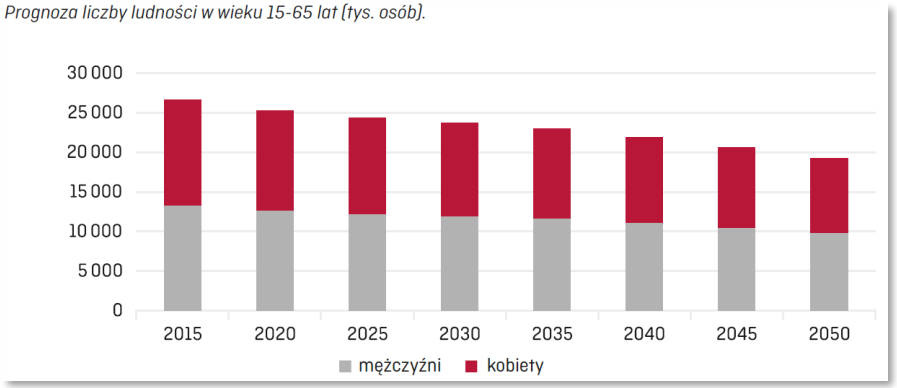
creditrisk monitor

WARNING INDICATORS - EXAMPLES





Prognoza liczby ludności w wieku 15-65 lat (tys. osób).



WARNING INDICATORS - EXAMPLES

https://www.bankier.pl/wiadomosc/Tracimy-pracownikow-z-Ukrainy-4177758.html

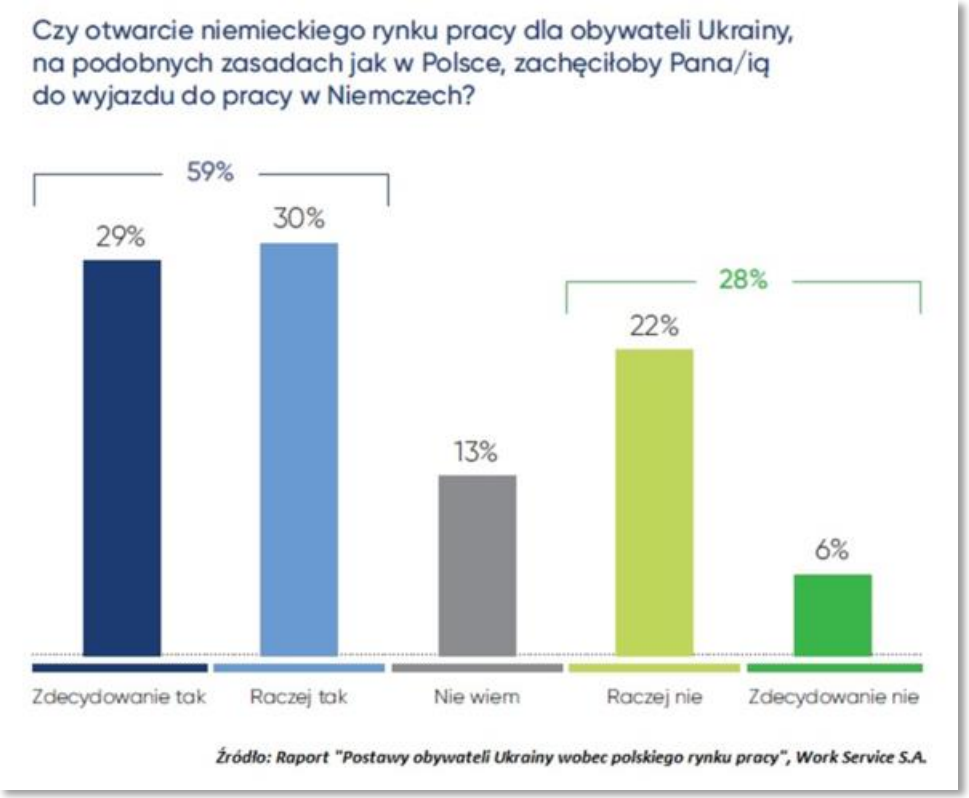
Biznes | Płaca i kariera | Wiadomości | Wynagrodzenie | Kobiecy pomysł na biznes

Tracimy pracowników z Ukrainy

2018-11-19 02:43 Poleć 12 A A+ A+

Polskie agencje zatrudnienia działające na Ukrainie ostrzegają: nasila się konkurencja o tamtejszych pracowników ze strony Czech, Słowacji i Niemiec - podkreśla poniedziałkowa "Rzeczpospolita".

"Niemieccy pośrednicy już werbują na Ukrainie kandydatów do pracy, przygotowując się na wejście w życie przepisów, które w przyszłym roku mają ułatwić migrację zarobkową do Niemiec. Wzmogła się też konkurencja ze strony Czech i Słowacji. Ukraińcom oferuje się tam zarobki o 20-30 proc. wyższe niż u nas. Z Polski może wyjechać duża część fachowców - obawia się Marian Przeździecki, dyrektor ukraińskiego oddziału Work Service. Związek Przedsiębiorców i Pracodawców (ZPP) potencjalny ukraiński exodus szacuje na 500 tys. osób, co obniżyłoby nasz PKB o 1,6 proc." - czytamy w "Rz".



Credit events

Credit event is an any sudden and tangible (negative) change in a borrower's credit standing or decline in credit rating

Bankruptcy or insolvency under corporate law

Credit upon a merger

Cross acceleration

Cross default

Currency convertibility

Downgrade

Restructuring

Failure to pay

Government action

Market disruption

Moratorium on debts

Obligation acceleration

Obligation default

Repudiation

Warning indicators - examples

Warning indicators - examples

arjowiggins

Credit risk signals & credit events

COOPERATION WITH EXTERNAL ENTITIES

I. Business intelligence, credit bureaus, insurers, factors, banks, rating agencies, stock exchanges and other sources of credit information.

II. Reports and analysis supporting credit analysis

III. Credit risk mitigation – receivables management vs. security instruments

BUSINESS INTELLIGENCE AGENCIES

BUSINESS INTELLIGENCE AGENCIES

The credit report prepared by the business intelligence provider includes:

- contact details of the entity & registration data: composition of the management, representation, composition of the supervisory board
- company history, business object, market share, key customers, key suppliers
- information on subsidiaries, as well as capital and personal relationships, capital, property, employment
- directions and volume of import and export
- realized or planned investments, mergers or acquisitions
- financial statements of the entity
- solvency, assessment of payments, collection proceedings
- name of banks serving
- creditworthiness assessment
- timely payment of liabilities (so-called payment morality)
- analysis of the financial result of the entity against the background of the sector

TRADE CREDIT INSURERS

- With trade credit insurance, the entrepreneur becomes independent from the financial troubles of the customer.
- The verification of the credibility of the counterparties is a very important service within the insurance policy, which minimizes the risk.
- Insurance companies have their databases or use business intelligence information. This helps to determine the limit of liability that can be taken in a particular case.

AIG

Atradius
Managing risk, enabling trade

EULER HERMES
Our knowledge serving your success

coface
FOR SAFER TRADE

EXPORT-IMPORT BANK OF THE UNITED STATES

CREDENDO

KUKE

SINO SURE 中国出口信用保险公司
CHINA EXPORT & CREDIT INSURANCE CORPORATION

Rating agencies

- Credit rating agencies deal with collection of information about the issuers of bonds (companies, funds, banks, non-profit organizations, governments, local governments), followed by credit rating (ability to repay interest and principal payments) of these entities, as well as an assessment of the debt instruments themselves traded on the secondary market.
- The assessment process is carried out in accordance with the procedure (methodology) adopted by the credit rating agency.
- Ratings are expressed by letter symbols, and may also contain numbers or +/- marks for differences in one category.

Standard & Poor's Ratings Services McGraw Hill Financial

Moody's

Egan-Jones Ratings Company

FitchRatings

JCR Japan Credit Rating Agency, Ltd.

Morningstar®

INC Rating

EuroRating™

esma European Securities and Markets Authority

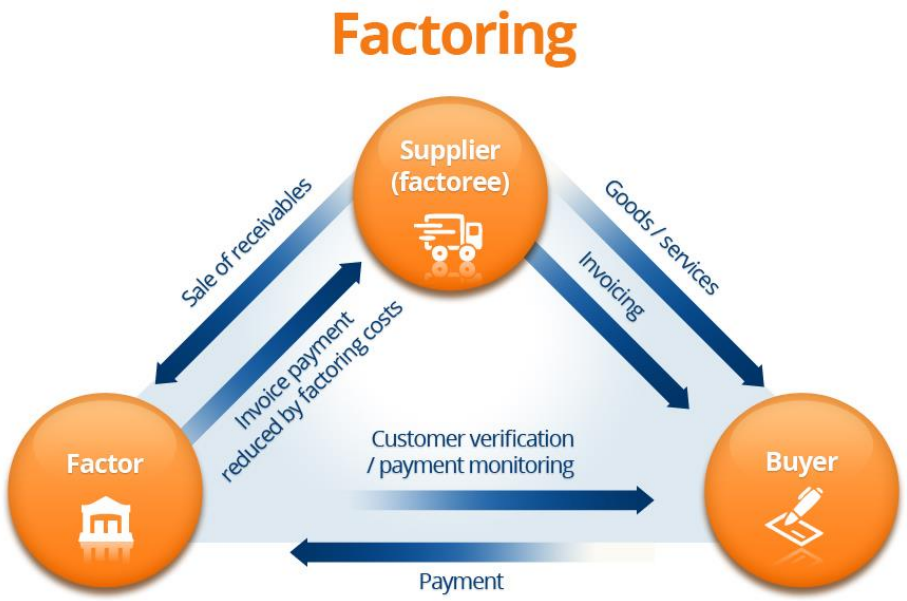
Reports and analysis supporting credit analysis

- **Coface**: http://www.coface.pl/AKTUALNOSCI-I-MEDIA/Publikacje
- **Instytut Badań nad Gospodarką Rynkową**: http://www.ibngr.pl/Publikacje/Mapa-Ryzyka-Inwestycyjnego
- **Euler Hermes**: http://www.eulerhermes.pl/analizy-ekonomiczne
- **Korporacji Ubezpieczeń Kredytów Eksportowych**: http://www.kuke.com.pl/serwis-ekonomiczny
- Industry Performace Forecast published by **Atradius**: https://atradius.co.uk/industry-performance-forecast.html#

- **Giełda Papierów Wartościowych w Warszawie**: https://www.gpw.pl/
- **Reuters** – http://www.reuters.com/
- **Bloomberg** – https://www.bloomberg.com
- **Eurostat** – http://ec.europa.eu/eurostat

FACTORING & FORFAITING

- **Factoring** can be considered as a loan agreement. It is considered that when a factoring contract is concluded, the factor transfers money to the factoree, and in turn the factoree transfers the ownership of the receivables to secure its future claims on the loan granted.
- Also, the factoring agreement is often compared to the receivables discounting (sales) because it is considered that the factoree receives the cash for the receivables sold.
- **Forfaiting** is a special form of cash settlement involving the purchase of cash claims excluding the right of recourse against the seller. It is very similar in form to factoring.
- Forfaiting involves large transactions, large amounts and fairly long payment terms.



Factoring & Forfaiting

Industry dynamics

2017 GDP figures remain to be fully finalised, but first estimates are available for us to use to look at the GDP penetration of the Industry; we appear to be operating just above the 4% mark on a global basis (which compares to around 10.5% for Europe where the Industry is still most established).

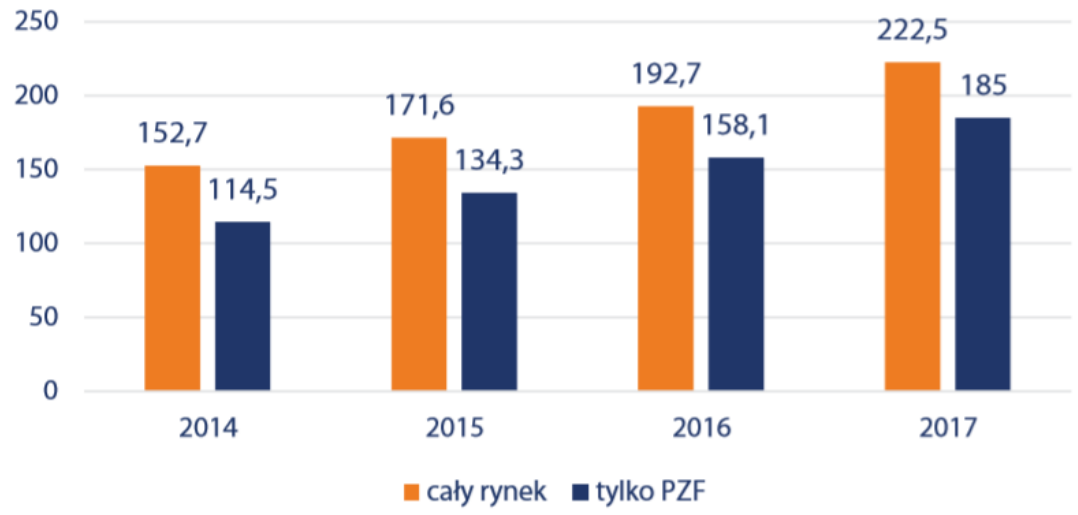
For Poland the penetration figure is 10%, so now very close to the European average.

First estimates of total advances against invoices are estimated to be in order €390Bn at the end of the year, up around 8%. To arrive at this important figure we use actual reported advances where they are available and from imputed average days outstanding calculations. For Poland the figure is €3.665Bn, approaching 1% of the global total.

Faktoring jest najszybciej rosnącym segmentem rynku usług finansowych w Polsce. Obroty faktorów należących do Polskiego Związku Faktorów wzrosły w 2017 roku o 20,1% w stosunku do 2016 roku. Wpisuje się to w trend wzrostu polskiego faktoringu, który utrzymuje się nieprzerwanie od 2009 roku. Dynamika wzrostu rynku faktoringu przewyższa wskaźniki dla całej polskiej gospodarki.

Wzrost rynku faktoringowego w Polsce w latach 2014– 2017 ilustruje poniższy wykres.

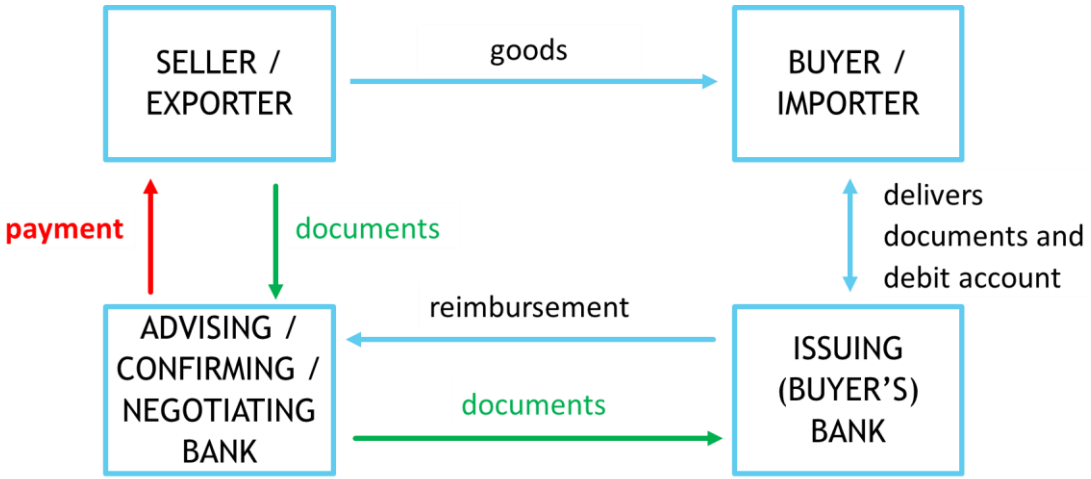
Rys. 6. Obroty faktoringu w Polsce w okresie 2014–2017 (mld zł).



Źródła: Statystyki PZF oraz badania autora.

(DOCUMENTARY) LETTER OF CREDIT

- Letter of credit is a form of domestic and foreign settlements through a bank used as an instrument securing the interests of the parties to the contract. The document specifying the terms of these settlements is also called a Letter of Credit (L/C, LC, LOC).
- Documentary letter of credit is a self-contained, written commitment of an **opening bank** (importer bank) towards an exporter (**beneficiary**) to pay or secure payment of a specified amount of money, provided that he presents the documents in accordance with the letter of credit and under the conditions set out therein.



STANDBY LETTER OF CREDIT

LETTER OF CREDIT NO: _____
DATE OF MATURITY: _____
DATE OF EXPIRATION: _____
BENEFICIARY: _____

WE, BANK OF __(ISSUING)__, _(CITY)_ BRANCH, ON BEHALF OF ___ (APPLICANT) ____, THE APPLICANT, HEREBY OPEN THIS IRREVOCABLE, TRANSFERABLE LETTER OF CREDIT IN FAVOUR AND FOR THE CREDIT OF__(SELLER) __ THE BENEFICIARY, AMOUNTING TO THE TOTAL VALUE AS USDXXX00000. 00 (SAY X MILLION X HUNDRED THOUSAND UNITED STATES DOLLARS ONLY).

THIS L/C IS AVAILABLE FOR PAYMENT AGAINST THIS L/C TO (__ BENEFICIARY __) OR TO THE BONAFIDE BEARER OR HOLDER THEREOF BY BENEFICIARY'S FIRST WRITTEN DEMAND AFTER MATURITY DATE, BY KEY TESTED TELEX, OR KEY TEST SWIFT MESSAGE DRAWN ON BANK OF __ (ISSUING) ___, ___(CITY) __ BRANCH MATURING ON MONTH/YEAR. PAYMENT WITHOUT DELAY IN UNITED STATES OF AMERICA DOLLARS. SUCH PAYMENT SHALL BE MADE WITHOUT SET-OFF, FREE AND CLEAR OF ANY DEDUCTION, CHARGE, FEE OR WITHHOLDING OF ANY NATURE NOW OR HEREAFTER IMPOSED, LEVIED, COLLECTED, WITHHELD, OR ASSESSED BY THE GOVERNMENT OF __ (ISSUING BANK) ___ OR ANY SUBDIVISION OR AUTHORITY THEREOF OR THEREIN.

DRAFTS DRAWN UNDER THIS L/C MUST BE MARKED:
DRAWN UNDER L/C NO. XXXXXX
DATED MONTH/YEAR OF THE BANK OF __ (ISSUING) ___, ____ BRANCH.
FOR U.S. DOLLARS X MILLION X HUNDRED THOUSAND ONLY.

THIS L/C IS TRANSFERABLE WITHOUT PRESENTATION OF IT TO US AND WITHOUT THE PAYMENT OF ANY TRANSFER FEE OR NOTIFICATION TO US. THIS L/C SHALL BE GOVERNED AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF (ISSUING BANK COUNTRY).

WE HEREBY ENGAGE WITH THE DRAWERS, ENDORSERS, AND BONAFIDE HOLDERS OF DRAFTS DRAWN UNDER AND IN COMPLIANCE WITH THE TERMS OF THIS CREDIT WILL BE DULY HONORED, PAID IN FULL, AT SIGHT ON PRESENTATION TO US. PAYMENT IS AVAILABLE FROM US OR AT THE COUNTERS OF AN AUTHORIZED CORRESPONDENT ON THE DUE DATE, AND PRIOR TO THE EXPIRY DATE, UPON THE BENEFICIARY OR TO THE BONAFIDE BEARER OR HOLDER THEREOF'S FIRST WRITTEN DEMAND, BY KEY TESTED TELEX, OR KEY TEST SWIFT MESSAGE.

THIS CREDIT IS SUBJECT TO THE INTERNATIONAL STANDBY PRACTICES - ISP98, INTERNATIONAL CHAMBER OF COMMERCE PUBLICATION NO. 590.

THIS IS A CALLABLE, OPERATIVE INSTRUMENT. ALL CHARGES ACCRUE TO THE ACCOUNT OF THE APPLICANT. NO HARD COPIES WILL FOLLOW.

BY: _____ BY: _____
AUTHORIZED BANK SIGNATURE AUTHORIZED BANK SIGNATURE

***** SLC MUST BE ISSUED VIA SWIFT *****

Source: **ABSOLUTE TRADING COMPANY**

Standard Format Bank Guarantee

(wording may vary, as long as essential points are included as below)

ON THE BANKS LETTERHEAD

BANK GUARANTEE

THE ISSUING BANK :

GUARANTEE NUMBER :

CURRENCY: U.S. DOLLARS

AMOUNT: *(e.g., US$48,000,000.00 Million U.S. Dollars Exactly)*

DATE OF ISSUE:

DATE OF MATURITY :

BENEFICIARY : *(NAME OF CLIENT/BORROWER)*

ON BEHALF OF OUR CLIENT, *(NAME OF CLIENT)*, **FOR VALUE RECEIVED, WE, (NAME OF ISSUING BANK), HEREBY IRREVOCABLY AND UNCONDITIONALLY AND WITHOUT PROTEST OR NOTIFICATION, PROMISE TO PAY AGAINST THIS, OUR IRREVOCABLE BANK GUARANTEE, TO THE ORDER OF** *(NAME OF CLIENT/BORROWER)*, **AS BENEFICIARY, ON THE MATURITY DATE, THE SUM OF** *(FIVE HUNDRED MILLION UNITED STATES DOLLARS ($48,000,000.00 USD)*, **UPON THEIR FIRST WRITTEN DEMAND FOR PAYMENT HEREUNDER. SUCH PAYMENT SHALL BE MADE WITHOUT SET-OFF, FREE AND CLEAR** OF ANY DEDUCTIONS, CHARGES, FEES, LEVIES, TAXES OR WITHHOLDINGS OF ANY NATURE.

THIS BANK GUARANTEE IS TRANFERABLE, WITHOUT PAYMENT OF ANY TRANSFER FEES.

THIS BANK GUARANTEE IS ISSUED IN ACCORDANCE WITH THE UNIFORM CUSTOMS AND PRACTICES FOR BANK GUARANTEES, AS SET FORTH BY THE INTERNATIONAL CHAMBER OF COMMERCE, PARIS, FRANCE, LATEST REVISION OF ICC 500 PUBLICATION.

THIS BANK GUARANTEE SHALL BE GOVERNED BY AND CONSTRUED IN ACCORDANCE WITH THE LAWS OF THE UNITED STATES OF AMERICA AND IS FREE AND CLEAR OF ANY LIEN AND ENCUMBRANCES AND IS OF NON-CRIMINAL ORIGIN.

_____
AUTHORIZED BANK OFFICER
NAME AND TITLE
DATE:
TELEPHONE:
FACSIMILE:
E-MAIL:

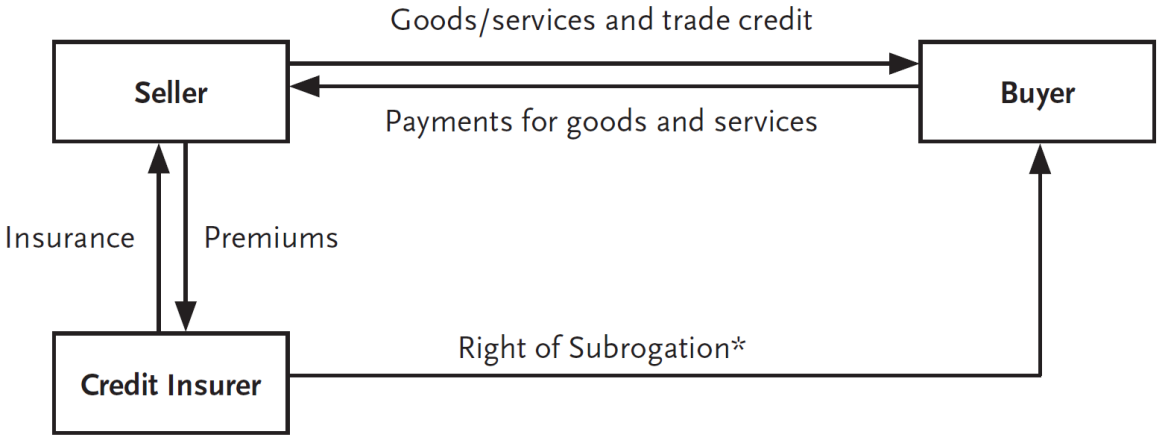
_____
AUTHORIZED BANK OFFICER
NAME AND TITLE
DATE:
TELEPHONE:
FACSIMILE:
E-MAIL:

TRADE CREDIT INSURANCE

- Trade credit insurance (also known as credit insurance, business credit insurance or export credit insurance) is an insurance policy and risk management product that **covers the payment risk resulting from the delivery of goods or services**.
- Trade credit insurance **usually covers a portfolio of buyers** and pays an agreed percentage of an invoice or receivable that remains unpaid as a result of protracted **default, insolvency or bankruptcy**.
- Trade credit insurance is purchased by business entities to insure their accounts receivable from **loss due to the non-payment of valid debt by their debtors**.
- It **can also be expanded to cover losses resulting from political risks** such as currency inconvertibility; war and civil disturbance; confiscation, expropriation and nationalization.

TRADE CREDIT INSURANCE

- The costs (called a "**premium**") for this are usually charged monthly, and are calculated as a percentage of sales of that month or as a percentage of all outstanding receivables.
- Trade credit insurance insures the **payment risk of companies**, not of private individuals.
- Policy holders require a **credit limit on each of their buyers** in order for the sales to that buyer to be insured.
- The **premium rate is usually low and reflects the average credit risk** of the insured portfolio of buyers.
- Additional premium is payable if the cover is expanded to include **political risks**.



Cooperation with external entities

Information – must have for every Credit Manager

I. Why and how do we monitor credit risk?

II. Sources of micro and macro information

III. Benchmarking – challenge to overcome

WHY AND HOW DO WE MONITOR CREDIT RISK?

Credit risk monitoring means the organization and processes in place to mitigate the risk of delayed payment or nonpayment by a customer.

Ideally, credit risk monitoring system should cover at least the following pillars:

- **Organization** – clearly assigned credit control function, implement a credit governance for key decisions, reinforce sales teams' commitment through training sessions as well as incentives
- **KPIs** - define and track a set of credit risk KPIs
- **Customers' financial health assessment** - implement a continuous customer health assessment
- **Credit insurance** - assess possibility of implementing credit insurance
- **Credit limits management** - define customers' credit limits based on risk assessment, ensure credit limits are enforced through orders blocking control mechanism
- **Accounts receivable balance management** - ensure receivables balances are accurate
- **Overdue management** - frequently review ageing balance to define appropriate action plans, establish an overdue management framework (from first reminder to customer, through to receivable write-off)

SOURCES OF MICROECONOMICAL INFORMATION

Microeconomic (industry) analysis - consists in comparing indicators characterizing a given enterprise with the same indicators of other enterprises from the same industry and with similar turnover structure in the same time interval.

- Banks
- Insurers of receivables
- Consulting and analytical companies
- Government agencies
- Federations and industry associations

Sources of macroeconomical information

GDP

ZEW

Conference Board Consumer Confidence

IFO

LIBOR

PMI

CCI

ISM Manufacturing Index

Chicago PMI

CPI

Philadelphia FED Index

THE WORLD FACTBOOK

GUS

TRADING ECONOMICS

The Economist Intelligence Unit

NBP Narodowy Bank Polski

DEPARTMENT OF COMMERCE UNITED STATES OF AMERICA

INTERNATIONAL TRADE ADMINISTRATION

CENTRAL INTELLIGENCE AGENCY

SPOTDATA

BENCHMARKING – CHALLENGE TO OVERCOME

Benchmarking is the practice of comparing actual performance results with a standardize performance goal or number – a benchmark:

- cost accountants generally use **internal benchmarking**
- another form of benchmarking is **external benchmarking**

Benchmarking is a method of establishing a standard for comparison to add context to the financial information provided in financial statements and ratios to derive meaning from these valuable data.

When we use benchmarks, the main question we are trying to answer is: **what is the average level of performance for a given ratio/metric in a specific industry?**

Challenges: (1) data collection, (2) private companies, (3) asy to make mistakes that misconstrue the findings of the analysis

REUTERS

http://financial.thomsonreuters.com/en/products/data-analytics/market-data/indices/trbc-indices.html

ENERGY: oil, coal, gas, renewable energy

BASIC MATERIALS: chemicals, mineral resources, applied resources

INDUSTRIALS: industrial goods (machinery) & services, transportation

CYCLICAL CONSUMER GOODS & SERVICES: auto, household, leisure, retail, hotels, media

NON-CYCLICAL CONSUMER GOODS & SERVICES: food, beverages, drugs

FINANCIALS: banking, insurance, real-estate, investment

HEALTHCARE: healthcare services, medical research, pharmaceuticals

TECHNOLOGY: technology equipment, software, IT services

TELECOMUNICATIONS SERVICES: telecommunication services

UTILITIES: electric-, water-, natural gas- utilities

REUTERS

Ecolab Inc (ECL.N)

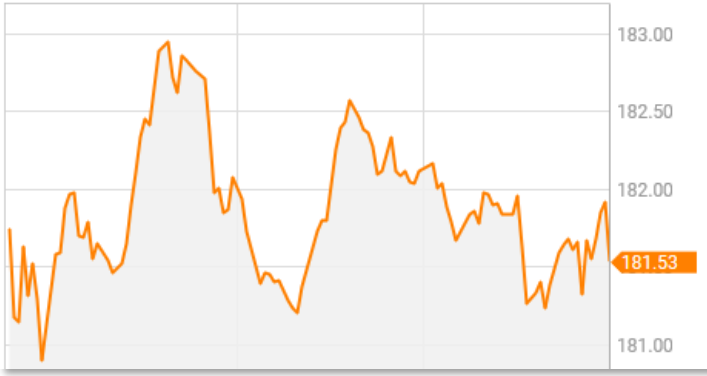
Related Topics: STOCKS STOCK SCREENER MARKET DATA BASIC MATERIALS SPECIALTY CHEMICALS

OVERVIEW | NEWS | KEY DEVELOPMENTS | PEOPLE | CHARTS | FINANCIALS | ANALYSTS | RESEARCH

ECL.N on New York Stock Exchange	Change (% chg)	Prev Close	Day's High	Volume
181.53USD	$-0.65 (-0.36%)	$182.18	$182.95	227,885
17 May 2019		Open $180.73	Day's Low $180.73	Avg. Vol 274,155

ECL.N | + Comparison | Indicator | Event

ECL.N Close $181.53 5/17/2019 4:00 pm EDT



ABOUT

Ecolab Inc. provides water, hygiene and energy technologies and services. The Company's cleaning and sanitizing programs and products, pest elimination services and equipment maintenance and repair services support customers in the foodservice, food and beverage processing, hospitality, healthcare, government and education,... (more)

BUY/SELL

Sell Hold Buy

Re

Uczestnicz w spotkaniach wymiani biznesow

EARNINGS VS

Information – must have for every Credit Manager

QUANTITATIVE FACTORS – FIRST BUT NOT MOST IMPORTANT

I. Essence, importance, limitations, sources of information

II. Object and scope of the financial analysis

III. Ratio analysis (liquidity ratios, performance indicators, solvency ratios, profitability ratios) – what is important and necessary?

Example Company
Balance Sheet
December 31, 2016

ASSETS

Current assets	
Cash	$ 2,100
Petty cash	100
Temporary investments	10,000
Accounts receivable - net	40,500
Inventory	31,000
Supplies	3,800
Prepaid insurance	1,500
Total current assets	89,000
Investments	36,000
Property, plant & equipment	
Land	5,500
Land improvements	6,500
Buildings	180,000
Equipment	201,000
Less: accum depreciation	(56,000)
Prop, plant & equip - net	337,000
Intangible assets	
Goodwill	105,000
Trade names	200,000
Total intangible assets	305,000
Other assets	3,000
Total assets	$ 770,000

LIABILITIES

Current liabilities	
Notes payable	$ 5,000
Accounts payable	35,900
Wages payable	8,500
Interest payable	2,900
Taxes payable	6,100
Warranty liability	1,100
Unearned revenues	1,500
Total current liabilities	61,000
Long-term liabilities	
Notes payable	20,000
Bonds payable	400,000
Total long-term liabilities	420,000
Total liabilities	481,000

STOCKHOLDERS' EQUITY

Common stock	110,000
Retained earnings	220,000
Accum other comprehensive income	9,000
Less: Treasury stock	(50,000)
Total stockholders' equity	289,000
Total liabilities & stockholders' equity	$ 770,000

The notes to the sample balance sheet have been omitted.

Example Corporation
Income Statement
For the year ended December 31, 2016

Sales (all on credit)	$500,000
Cost of goods sold	380,000
Gross profit	120,000
Operating expenses	
Selling expenses	35,000
Administrative expenses	45,000
Total operating expenses	80,000
Operating income	40,000
Interest expense	12,000
Income before taxes	28,000
Income tax expense	5,000
Net income after taxes	$ 23,000
Earnings per share	$ 0.23
(based on 100,000 shares outstanding)	

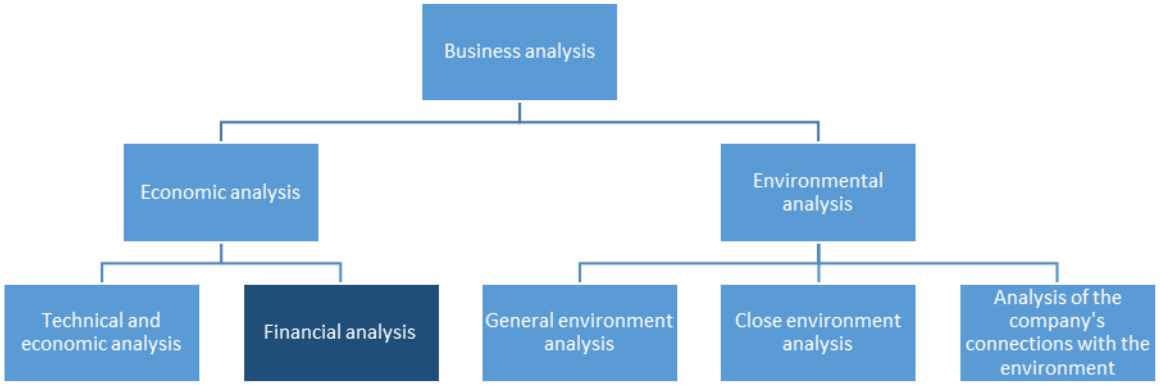
Good Deal Co.
Statement of Cash Flows
For the *Six Months* Ended June 30, 2016

Operating Activities	
Net income	$ 280
Add back: Depreciation expense	20
Increase in inventory	(200)
Increase in supplies	(150)
Cash provided (used) in operating activities	(50)
Investing Activities	
Increase in office equipment	(1,100)
Financing Activities	
Investment by owner	2,000
Net increase in cash	850
Cash at the beginning of the year	0
Cash at June 30, 2016	$ 850

FINANCIAL ANALYSIS

The financial analysis can be divided into the following stages:

- Balance sheet analysis (capital structure and financial risk)
- Analysis of profit and loss account
- Financial liquidity analysis
- Analysis of profitability (sales and capitals)
- Analysis of economic activity
- Analysis of the cash flow statement
- Analysis of debt service capacity and bankruptcy risk
- Analysis of market indicators



Technical and economic analysis

- Production analysis
- Analysis of employment and labor productivity
- Analysis of fixed assets
- Analysis of material management
- Analysis of technical potential

Financial analysis

- Analysis of the property & equity situation
- Analysis of the financial situation
- Analysis of the financial results
- Revenue Analysis
- Cost analysis
- Analysis of cash flows

FINANCIAL ANALYSIS

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**

FINANCIAL ANALYSIS

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:

$$\Delta E < \Delta A < \Delta R < \Delta P$$

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

FINANCIAL ANALYSIS (LIQUIDITY)

Liquidity – the organization's ability to meet its short-term obligations. This includes such items as how much working capital it requires and its debt obligations.

$$\textbf{Current ratio} = \frac{current\ assets}{current\ liabilities} \qquad (1{,}5 – 2{,}0)$$

$$\textbf{Quick ratio} = \frac{Cash\ \&\ cash\ equivalents + Marketable\ securities + Accounts\ receivable}{current\ liabilities} \qquad (0{,}8 - 1{,}2)$$

$$\textbf{Cash ratio} = \frac{cash\ \&\ cash\ equivalents}{current\ liabilities} \qquad \text{(no benchmark)}$$

FINANCIAL ANALYSIS (LIQUIDITY & SOLVENCY)

working capital:

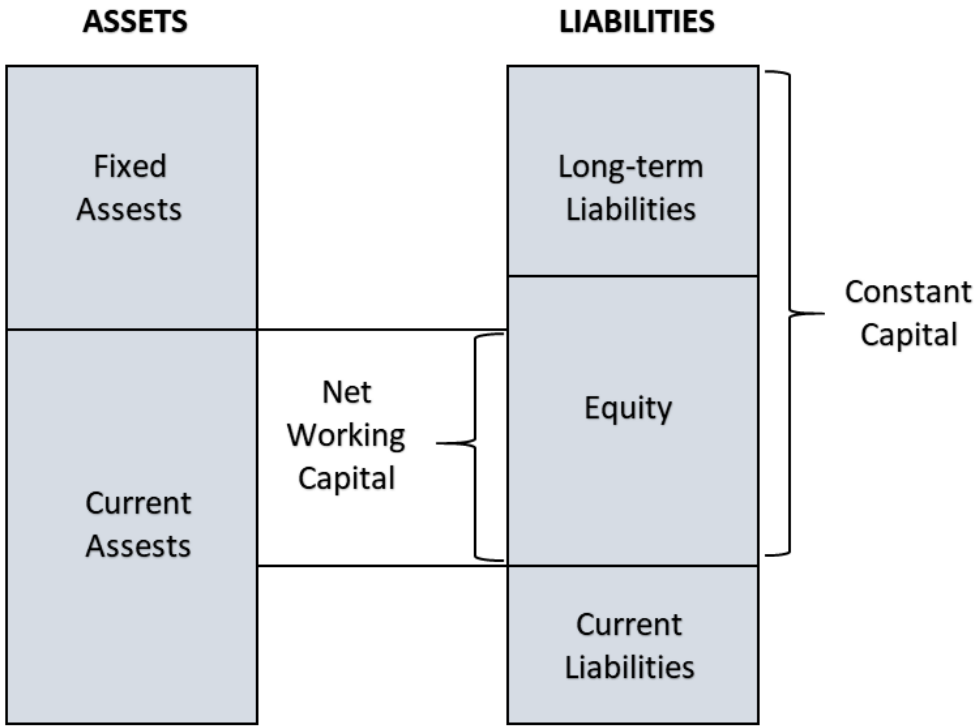
current assets - current liabilities

demand for working capital:

current assets - short-term investments (cash)
- non-interest bearing current liabilities

share of working capital in total assets:

$$\frac{\textit{working capital}}{\textit{total assets}}$$



FINANCIAL ANALYSIS (OPERATIONS)

$$\text{Inventory Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average inventory}}$$

$$\text{DIO} = \frac{365}{\textit{Inventory Turnover Ratio}} \text{ or } \frac{\text{Average inventory}}{\text{Cost of sales / 365}}$$

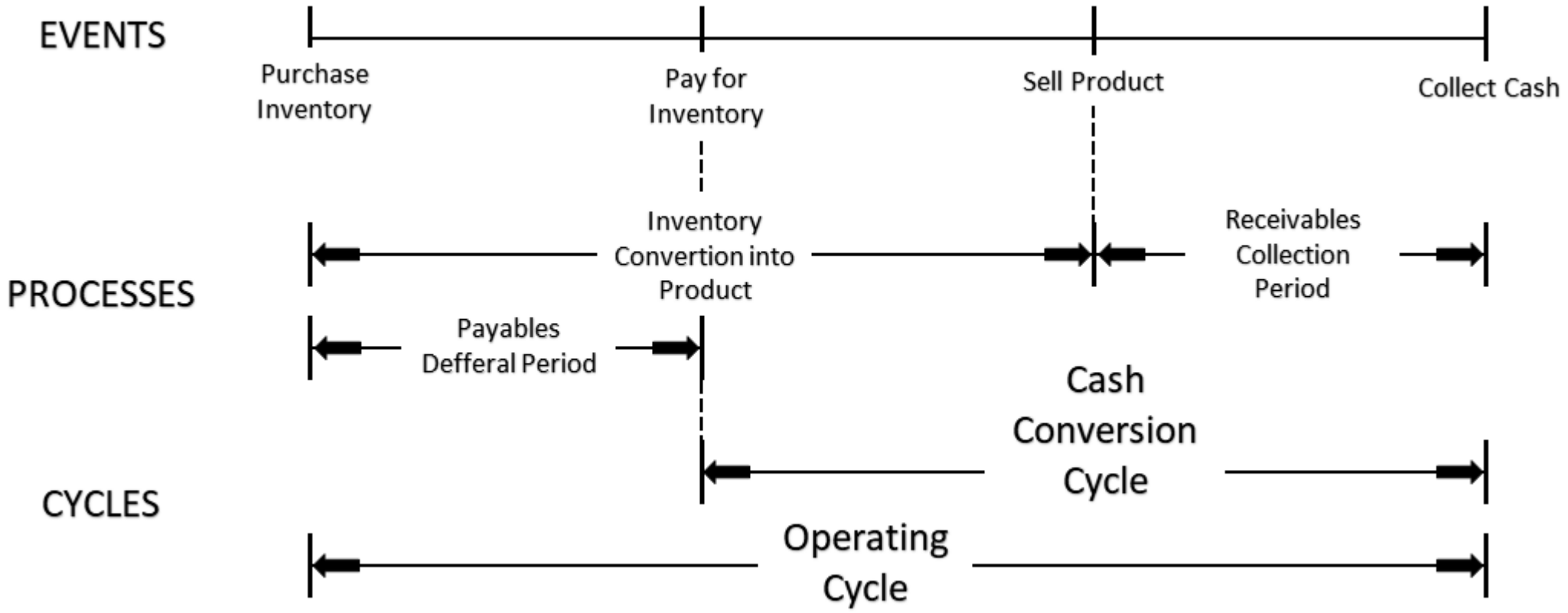
$$\text{Accounts Receivable Turnover Ratio} = \frac{\text{Net Sales}}{\text{Average Net Accounts Receivable}}$$

$$\text{DSO} = \frac{365}{\textit{Accounts Receivable Turnover Ratio}} \text{ or } \frac{\text{Average net accounts receivable}}{\text{Net Sales / 365}}$$

$$\text{Accounts Payable Turnover Ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Accounts Payable}}$$

$$\text{DPO} = \frac{365}{\textit{Accounts Payable Turnover Ratio}} \text{ or } \frac{\text{Average Accounts Payable}}{\text{Cost of Goods Sold / 365}}$$

Financial analysis (Cash Conversion Cycle - CCC)



Financial analysis (capital structure & solvency)

$$\textbf{Total debt to equity} = \frac{\textbf{Total liabilities}}{\textbf{Shareholder's equity}}$$

$$\textbf{Long-term debt to equity} = \frac{\textbf{Long-term liabilities}}{\textbf{Shareholder's equity}}$$

$$\textbf{Times interest earned (interest coverage ratio)} = \frac{\textbf{Income before income taxes and interest expense}}{\textbf{Interest expense}}$$

FINANCIAL ANALYSIS (PROFITABILITY)

- These ratios measure the organization's **use of its assets and control of its expenses** to generate an acceptable rate of return
- You can see if an organization is profitable simply by looking at an income statement, but you need to **put that into perspective**

$$\textbf{Gross profit margin} = \frac{Sales - Cost\ of\ sales}{Sales}$$

$$\textbf{Operating profit margin} = \frac{Income\ from\ operations}{Sales}$$

$$\textbf{Net profit margin} = \frac{Net\ income}{Sales}$$

$$\textbf{Return on assets (ROA)} = \frac{Net\ income + Interest\ expense\ x\ (1 - Tax\ rate)}{Average\ total\ assets}$$

$$\textbf{Return on equity (ROE)} = \frac{Net\ income}{Averge\ shareholders'\ equity}$$

BENEISH M-SCORE

The Beneish model is a statistical model that uses financial ratios calculated with accounting data of a specific company in order **to check if it is likely (high probability) that the reported earnings of the company have been manipulated**.

$$\text{M-Score} = -4.84 + 0.92 \times DSRI + 0.528 \times GMI + 0.404 \times AQI + 0.892 \times SGI + 0.115 \times DEPI - 0.172 \times SGAI + 4.679 \times TATA - 0.327 \times LVGI$$

If M-Score is less than -2.22 - the company is unlikely to be a manipulator.

If M-Score is greater than -2.22 - the company is likely to be a manipulator.

Days Receivable Index (DSRI) is:
DSRI = (Net Receivables$_t$ / Sales$_t$) / Net Receivables$_{t-1}$ / Sales$_{t-1}$)

Gross Margin Index (GMI) is:
GMI = [(Sales$_{t-1}$ - COGS$_{t-1}$) / Sales$_{t-1}$] / [(Sales$_t$ - COGS$_t$) / Sales$_t$]

Asset Quality Index (AQI) is:
AQI = [1 - (Current Assets$_t$ + PP&E$_t$ + Securities$_t$) / Total Assets$_t$] / [1 - ((Current Assets$_{t-1}$ + PP&E$_{t-1}$ + Securities$_{t-1}$) / Total Assets$_{t-1}$)]

NOTE: Securities is approximated by total long term investments, and is an adjustment described in Whalen, Bagingski and Bradshaw *Financial Reporting, Financial Statement Analysis, and Valution, 7th ed.*

Sales Growth Index (SGI) is:
SGI = Sales$_t$ / Sales$_{t-1}$

Depreciation Index (DEPI) is:
DEPI = (Depreciation$_{t-1}$/ (PP&E$_{t-1}$ + Depreciation$_{t-1}$)) / (Depreciation$_t$ / (PP&E$_t$ + Depreciation$_t$))

NOTE: YCharts uses Depreciation and Amortization in place of Depreciation because of how our data items are aggregated, so companies with large amortization costs will differ slightly from the true M-Score.

SG&A Expense Index (SGAI) is:
SGAI = (SG&A Expense$_t$ / Sales$_t$) / (SG&A Expense$_{t-1}$ / Sales$_{t-1}$)

Leverage index (LVGI) is:
LVGI = [(Current Liabilities$_t$ + Total Long Term Debt$_t$) / Total Assets$_t$] / [(Current Liabilities$_{t-1}$ + Total Long Term Debt$_{t-1}$) / Total Assets$_{t-1}$]

Total Accruals to Total Assets (TATA) is:
TATA = (Income from Continuing Operations$_t$ - Cash Flows from Operations$_t$) / Total Assets$_t$

Quantitative factors – first but not most important

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)

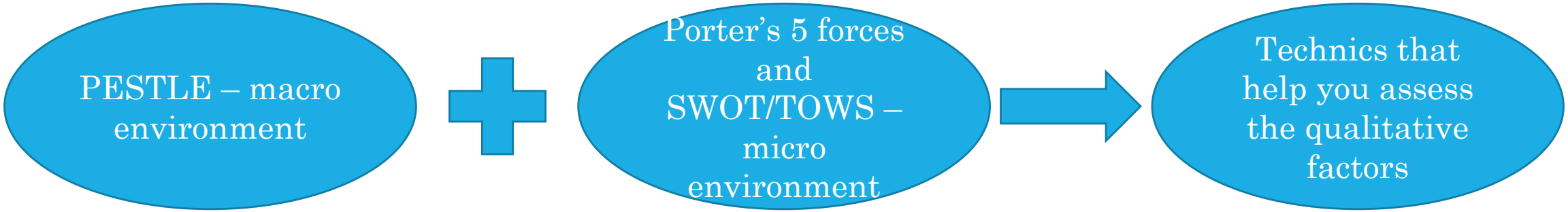
- macroeconomic environment
- competitiveness and sectoral competition
- the risk of substitution
- bargaining power of customers and suppliers
- determinants of entrepreneurship
- the potential of business innovation
- strength of financial statements
- business sector and the perceived strength of 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**.



MICROECONOMICS – SWOT

INTERNAL

STRENGHTS

WEAKNESSES

OPPORTUNITIES

TREATS

EXTERNAL

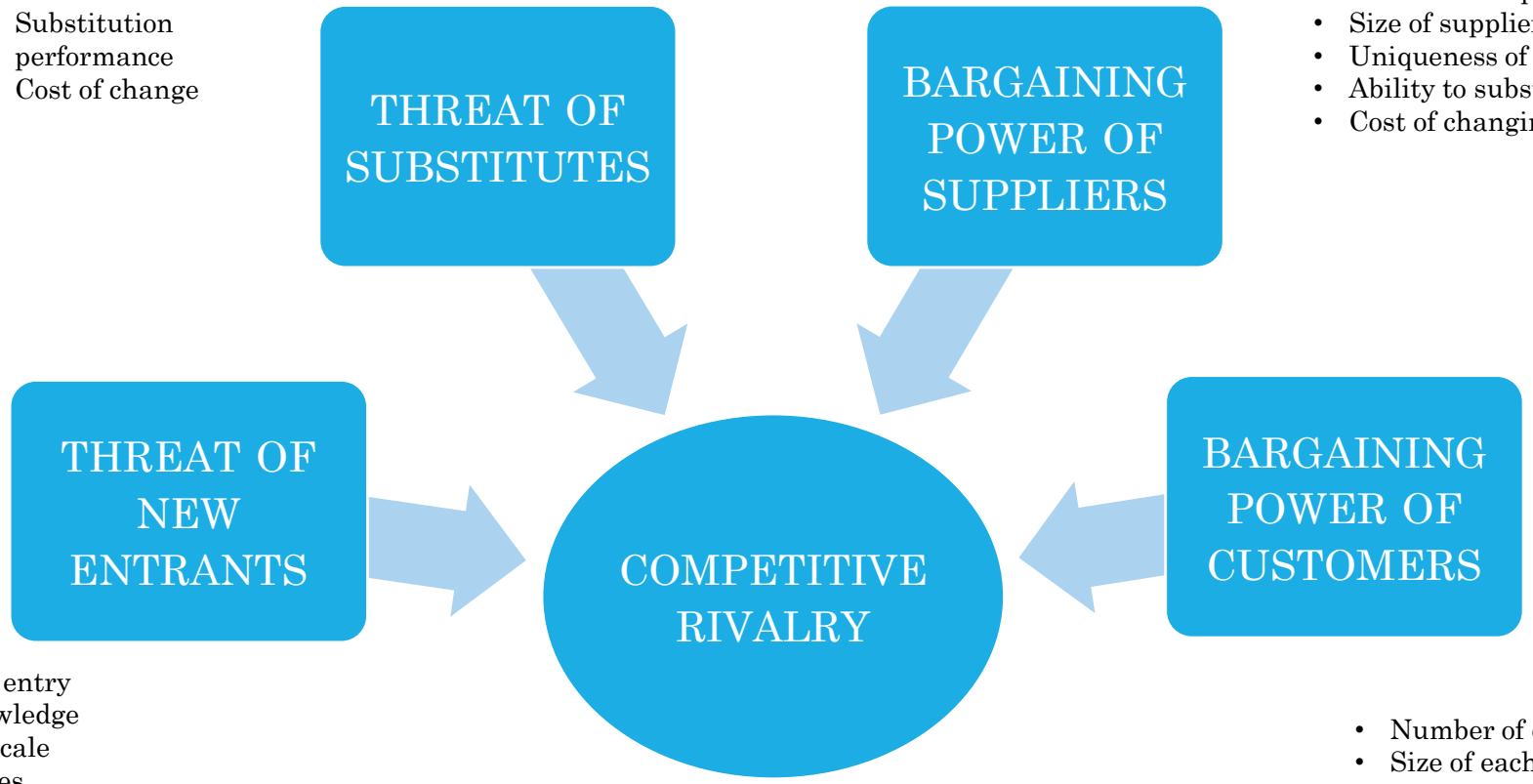
Microeconomics – Porter's Five Forces

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.

MICROECONOMICS – PORTER'S FIVE FORCES



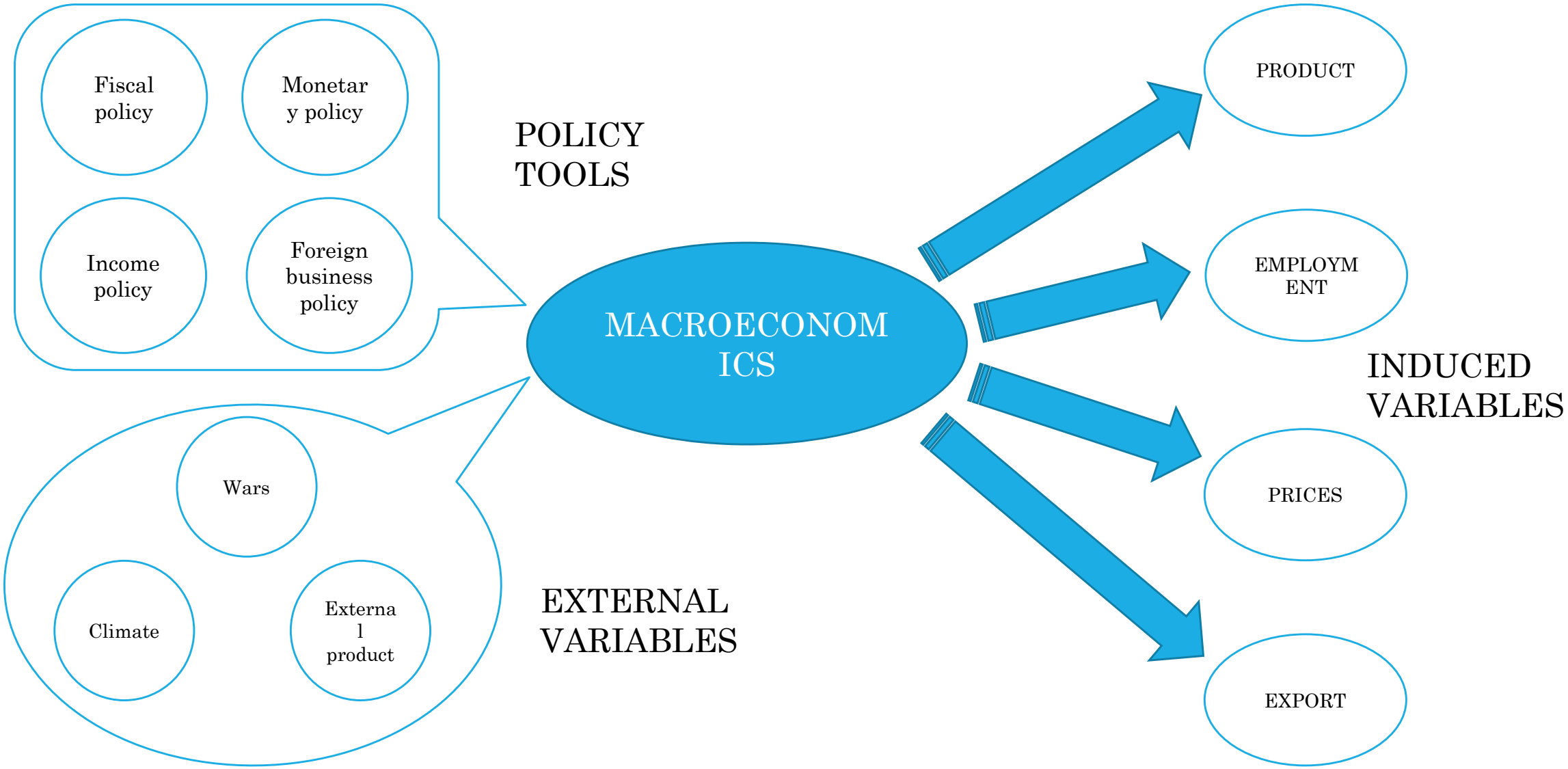
- Substitution performance
- Cost of change

- 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

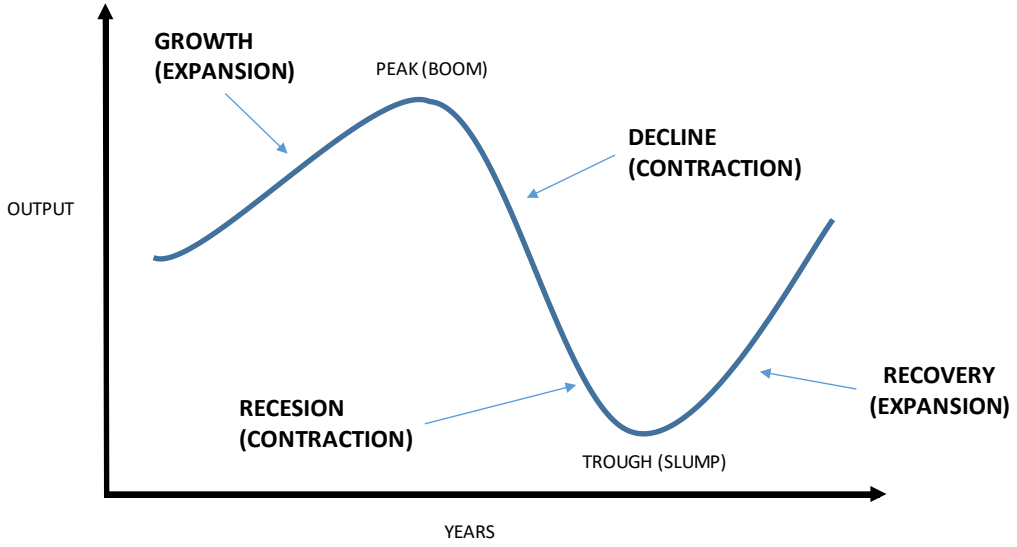
- Number of competitors
- Quality differences
- Switching costs
- Customer loyalty

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

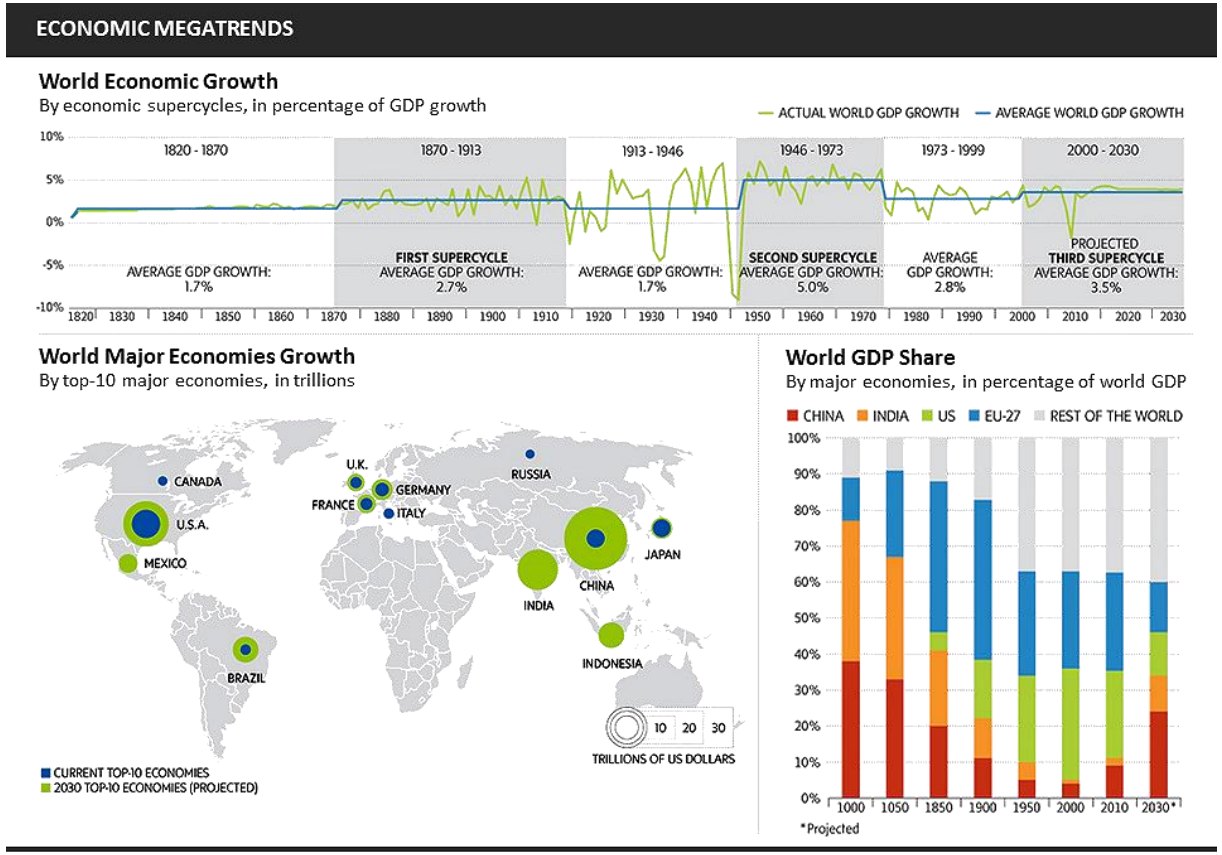

Fiscal policy
Monetary policy
Income policy
Foreign business policy
POLICY TOOLS
MACROECONOMICS
PRODUCT
EMPLOYMENT
PRICES
EXPORT
INDUCED VARIABLES
Wars
Climate
External product
EXTERNAL VARIABLES

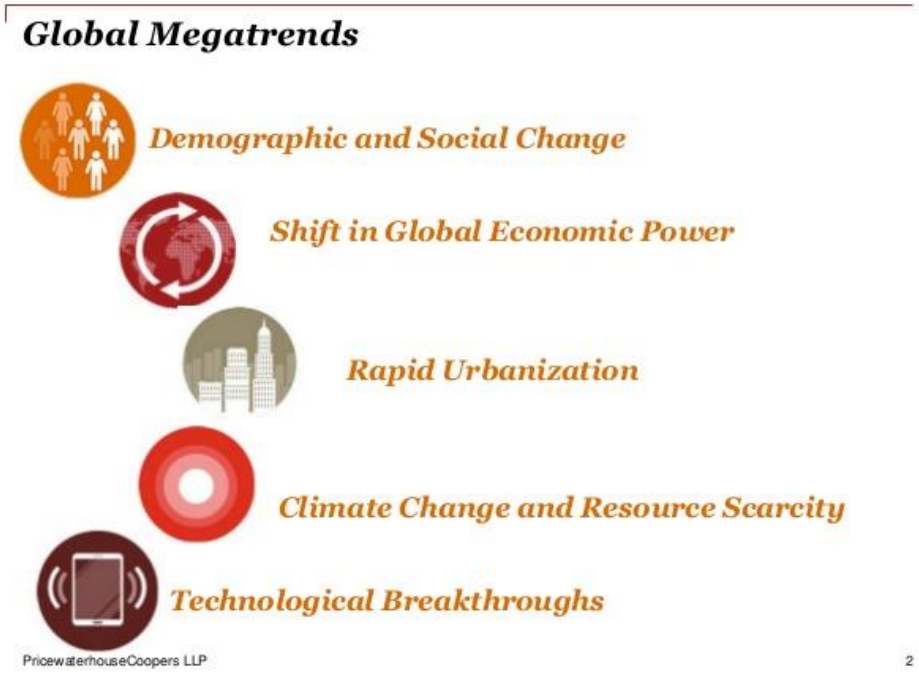
Business Cycles

- 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





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.

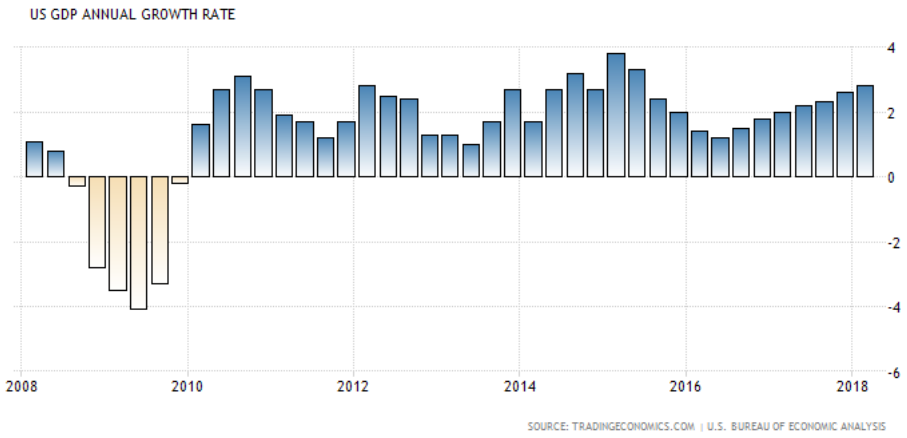
There are two types of indicators you need to be aware of:

- **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
Chicago PMI
LIBOR
ISM Manufacturing Index
factory orders
CCI
Philadelphia FED Index
industrial production

Lagging Economic Indicators: Gross Domestic Product (GDP)



Lagging Economic Indicators: Gross Domestic Product (GDP)

The expenditure approach utilizes four main components of GDP:

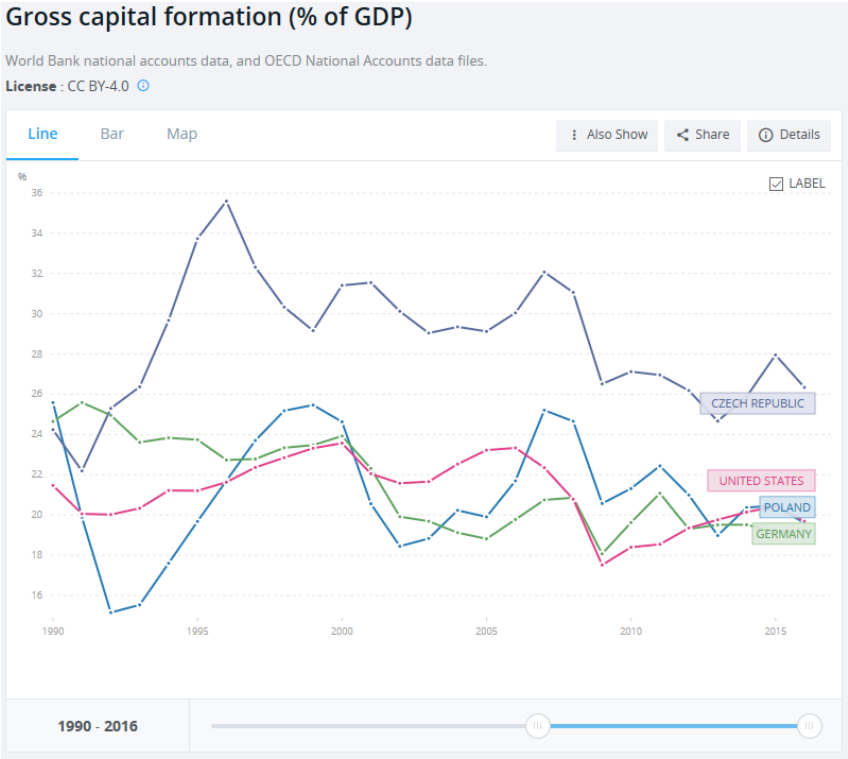
$$GDP = C + I + G + (X - M)$$

Consumption (C) - personal consumption expenditures

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

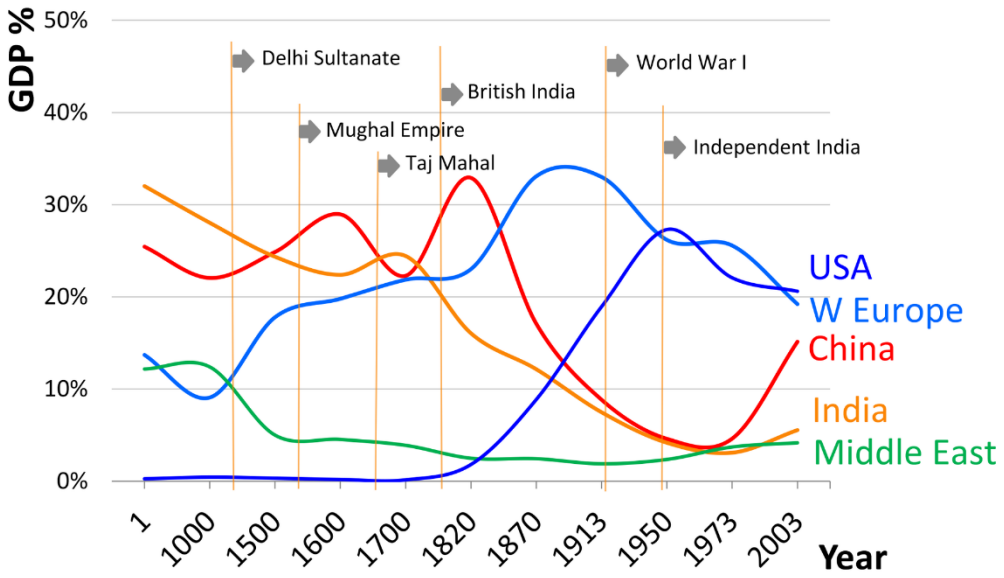
Government (G) - transfer payments are not included in GDP

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



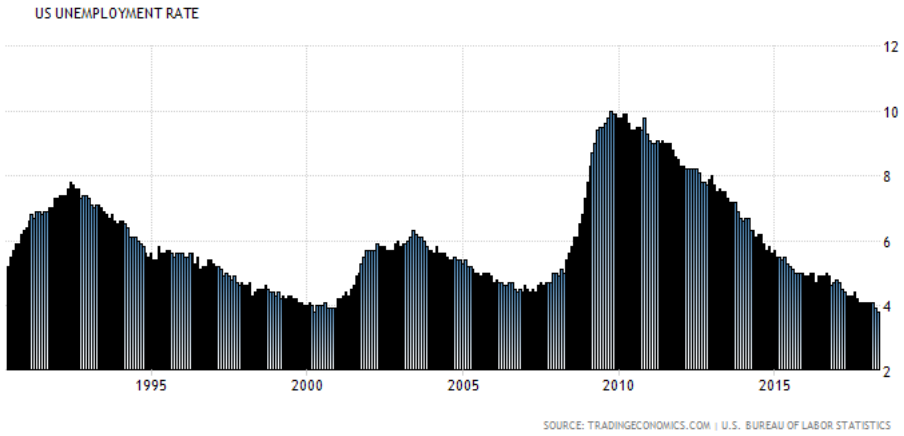
Source: Worldbank

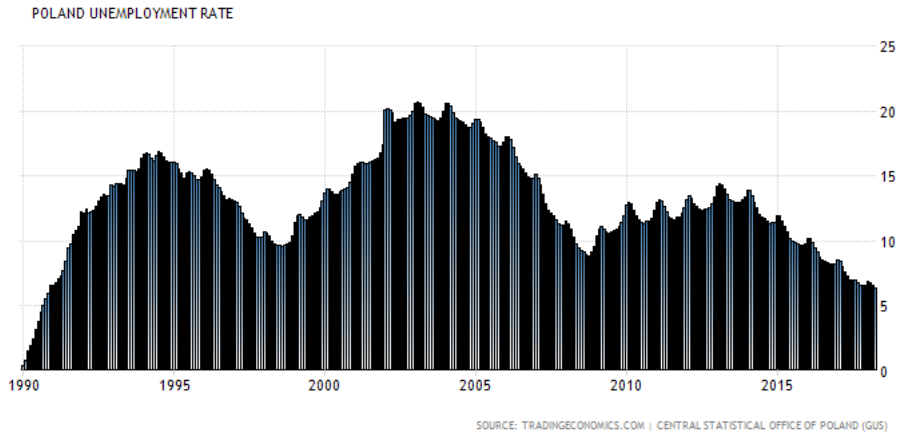
Lagging Economic Indicators: Gross Domestic Product (GDP)

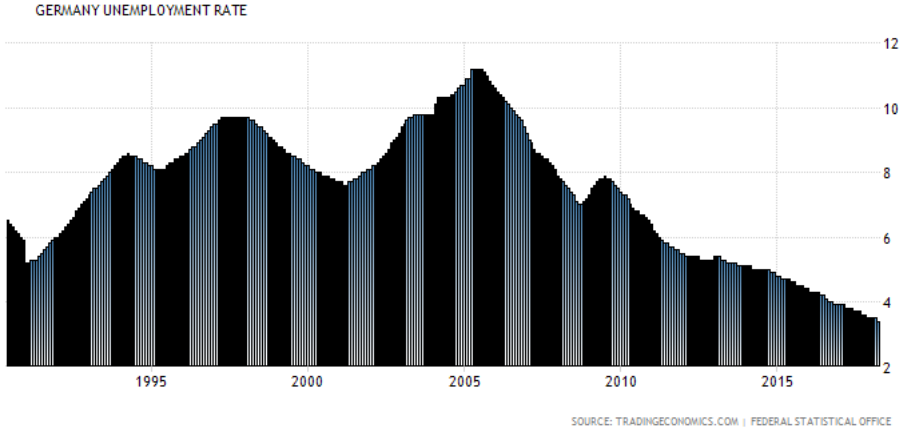


The global contribution to world's GDP by major economies from 1 CE to 2003 CE according to Angus Maddison's estimates. Up until the early 18th century, India and China were the two largest economies by GDP output. Source: Wikipedia

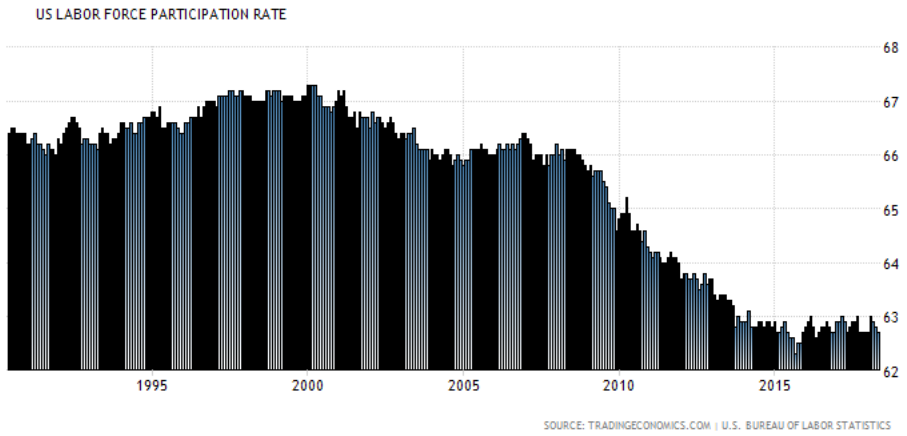
Lagging Economic Indicators: Unemployment Rate

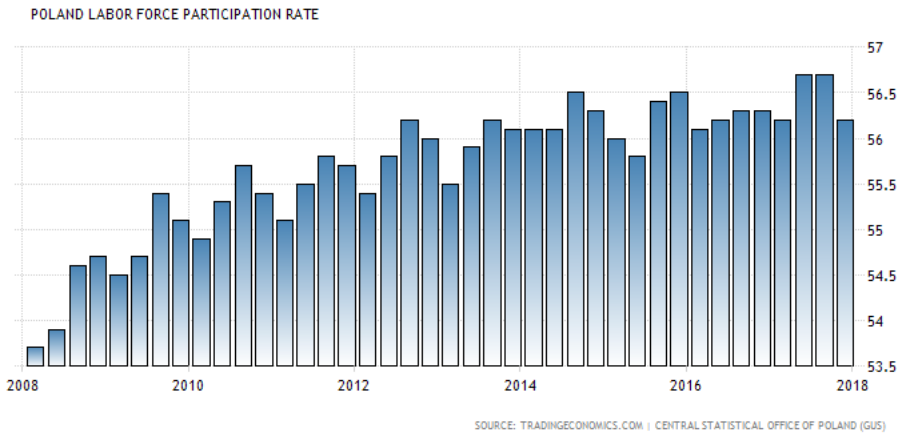


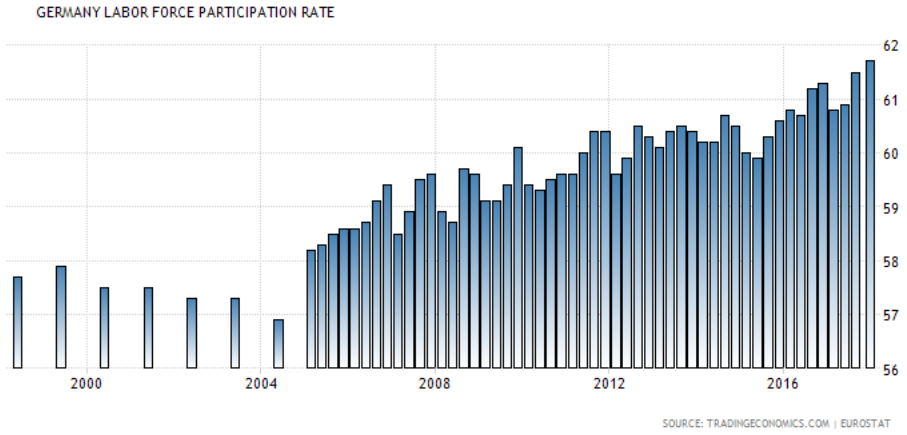


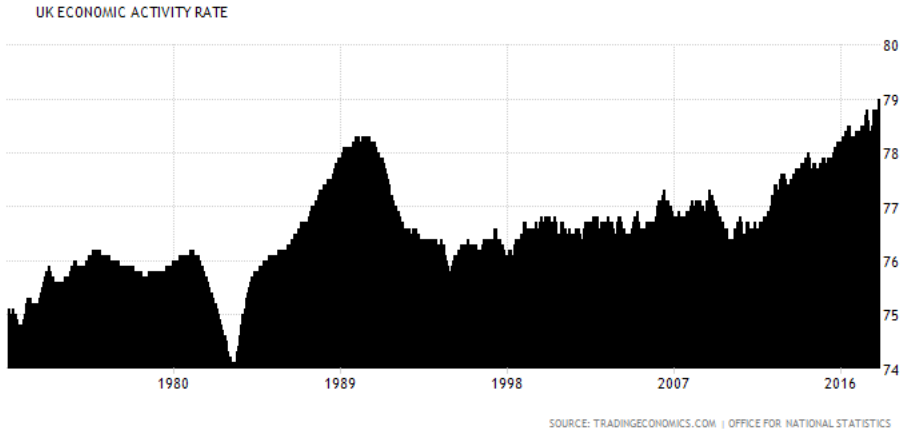


Lagging Economic Indicators: Labour Force Participation Rate

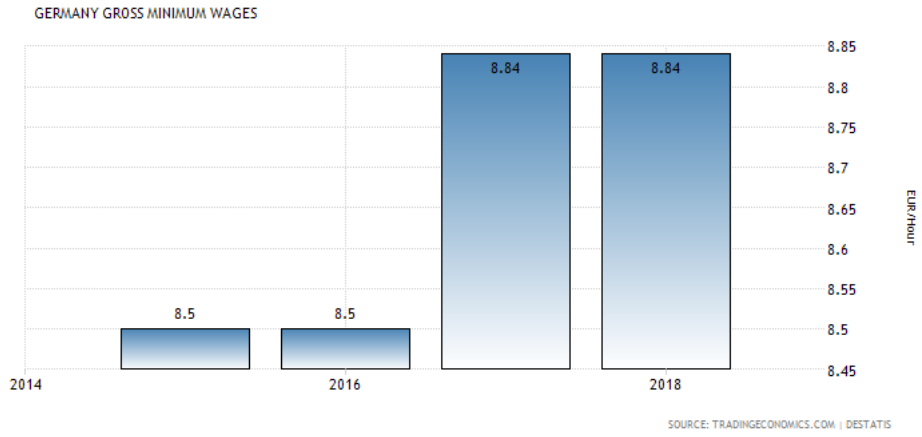




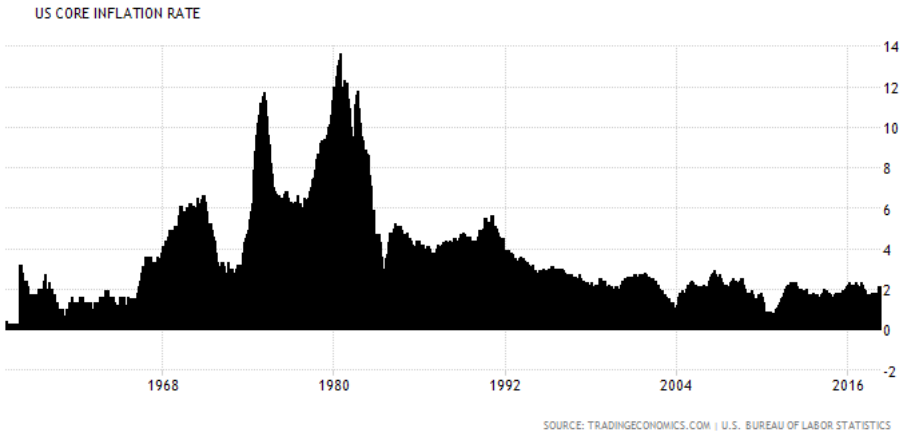


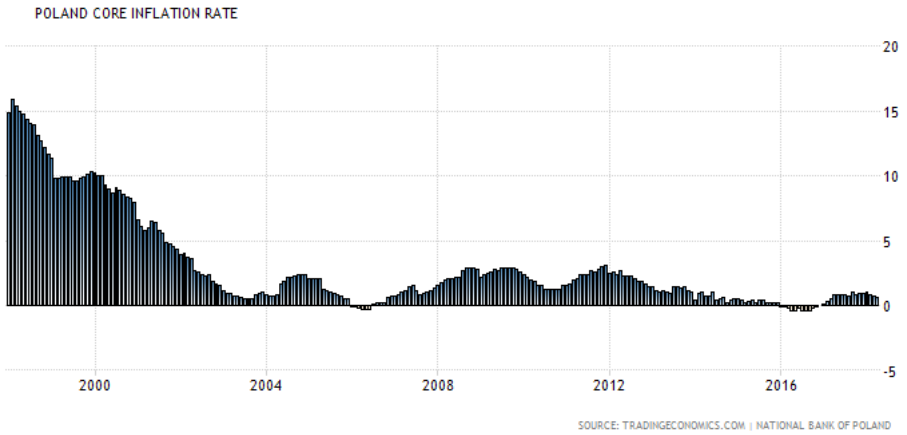


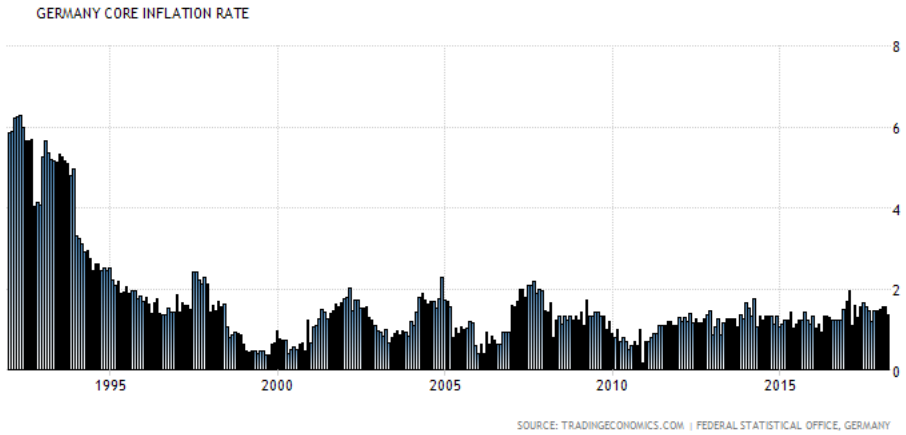
Lagging Economic Indicators: minimum wages

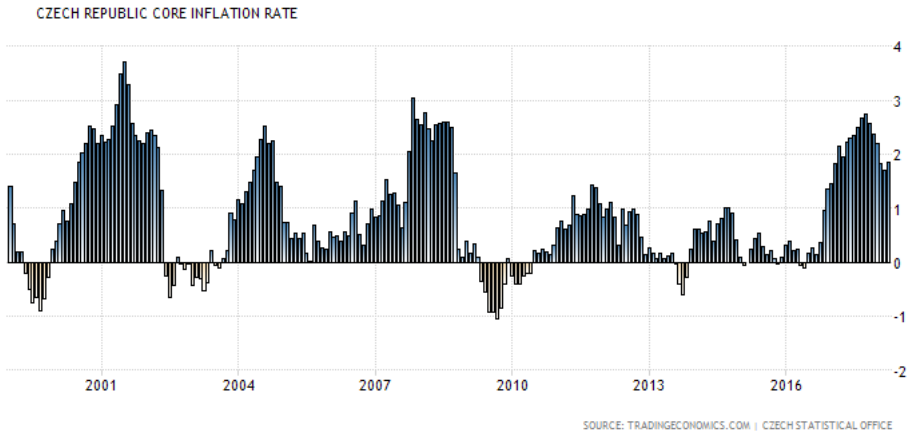


Lagging Economic Indicators: Core inflation rate

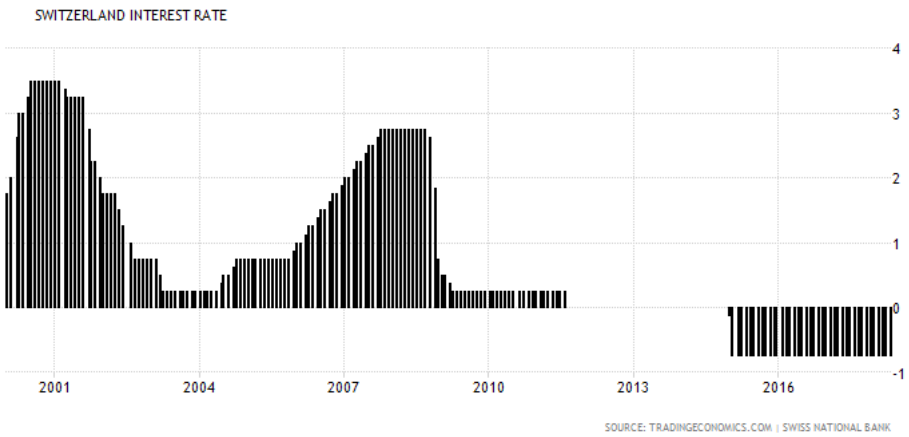


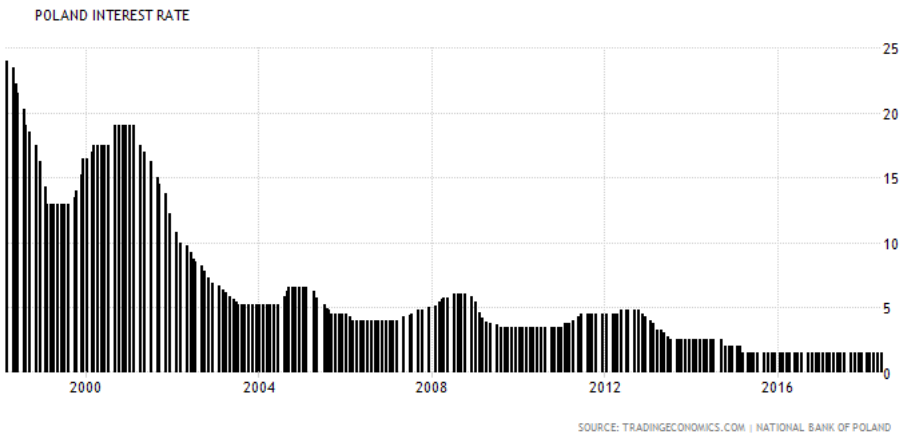


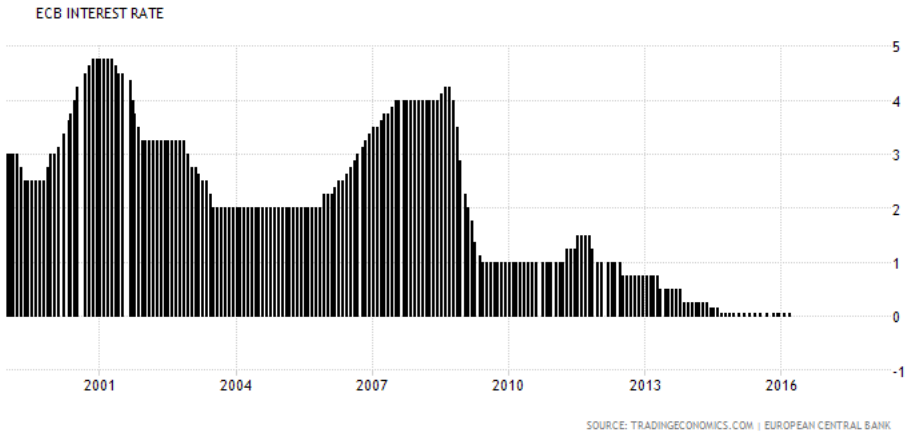


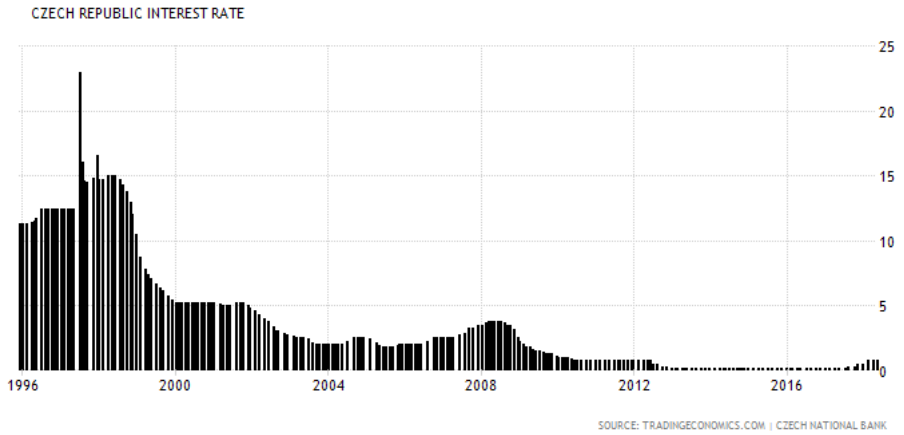


Lagging Economic Indicators: Interest Rates









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

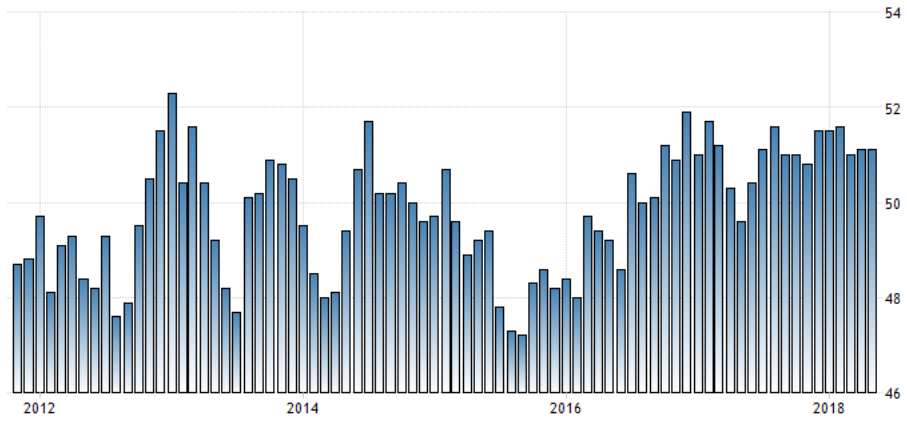
PMI is based on five individual indexes with the following weights:

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

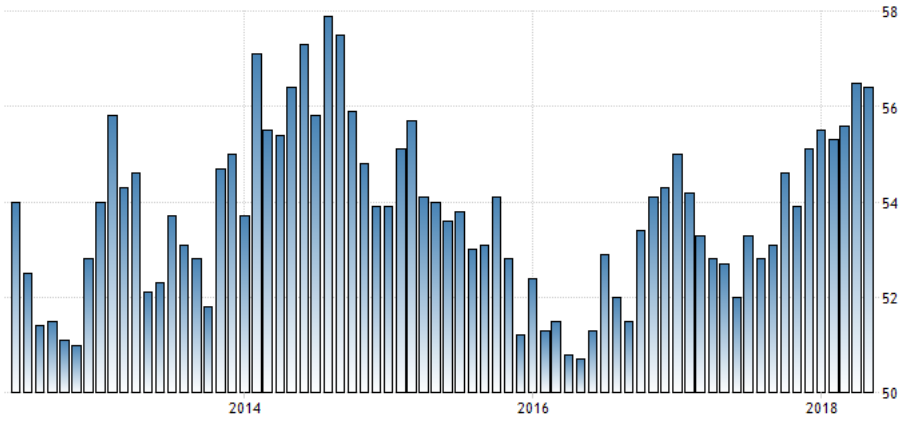
> 50 

< 50 

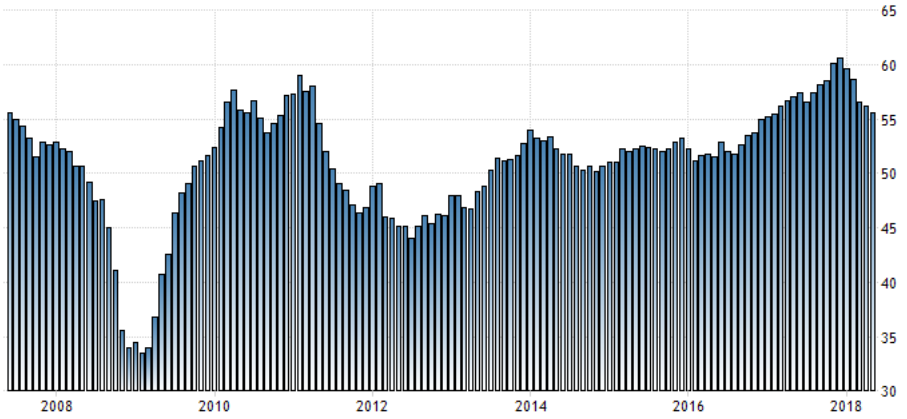
Leading Economic Indicators



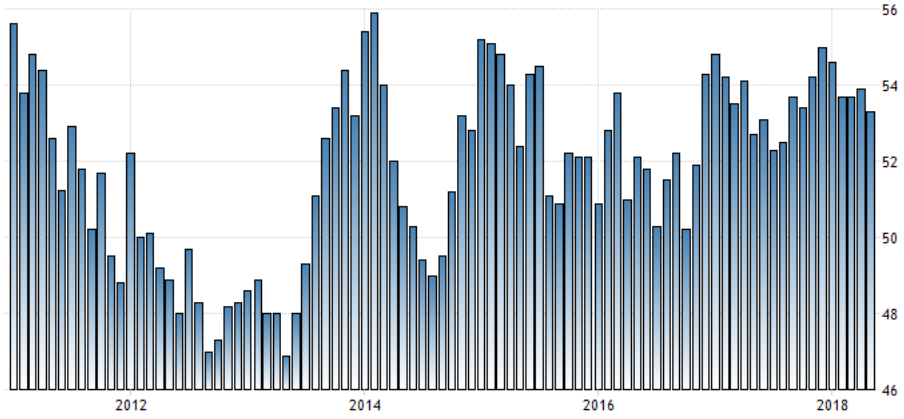
China Manufacturing PMI; source: Tradingeconomics.com



USA Manufacturing PMI; source: Tradingeconomics.com



Euro Area Manufacturing PMI; source: Tradingeconomics.com



Poland Manufacturing PMI; source: Tradingeconomics.com

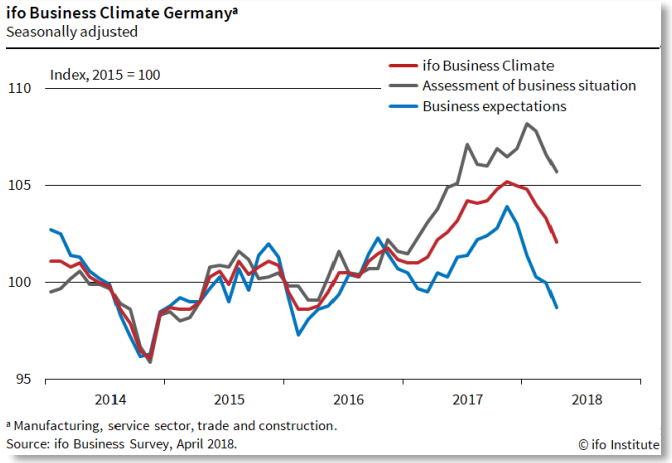
Leading Economic Indicators

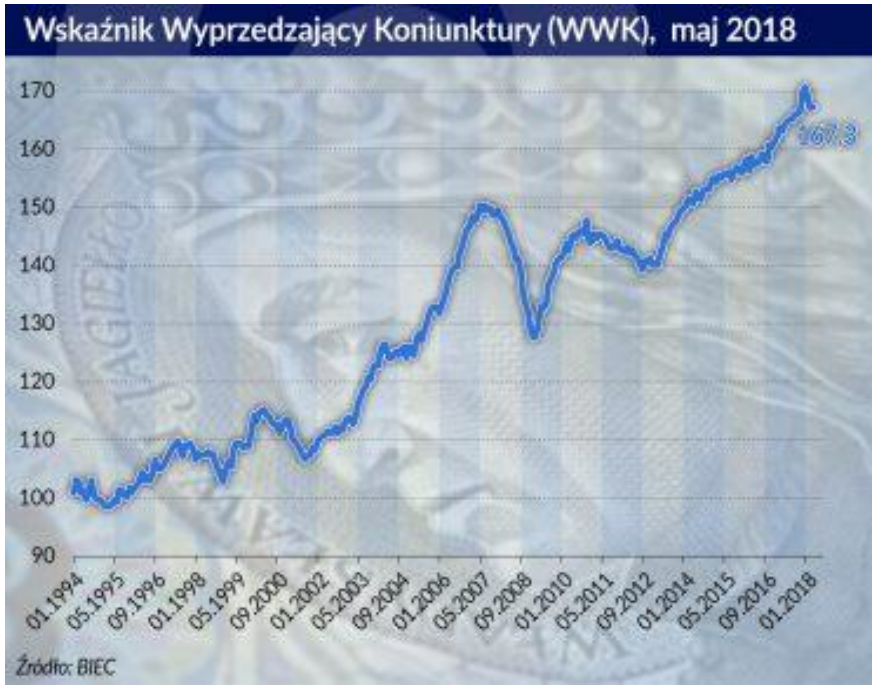
Ifo Business Climate Index (IFO), a leading indicator for economic activity prepared by the Ifo Institute for Economic Research in Munich, is based on around 7000 monthly survey responses from firms in manufacturing, construction, wholesaling and retailing in Germany. The firms are asked to give their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

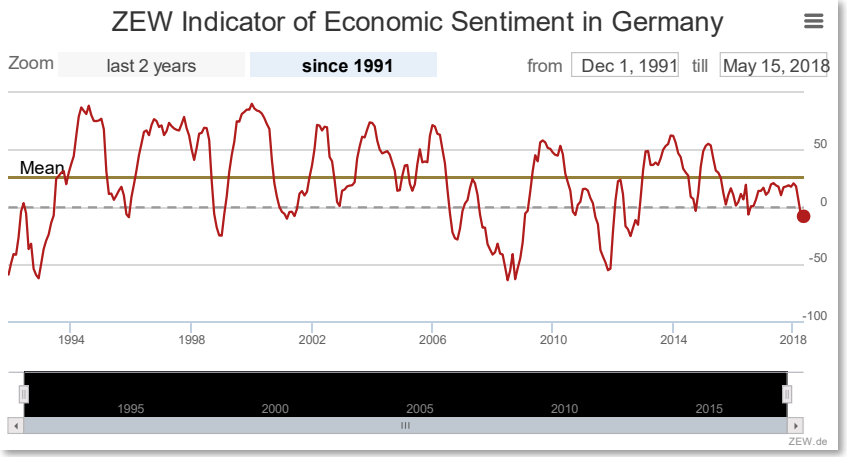
ZEW Economic Sentiment (ZEW), a monthly economic survey, is an consolidation of the sentiments of approximately 350 economists and analysts regarding the economic future of Germany for the next six months. The survey shows the balance between those analysts who are optimistic about Germany's economic 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

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

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

Discriminant models – example

Altman	Synthos 2012	Synthos 2013	Synthos 2014	Synthos 2015	LanXess 2012	LanXess 2013	LanXess 2014	LanXess 2015	Trinseo 2012	Trinseo 2013	Trinseo 2014	Trinseo 2015
Z	5,06	3,51	2,89	2,72	2,07	1,51	1,64	1,79	1,87	1,94	1,82	2,00
Z'	3,56	2,45	2,00	1,87	1,51	1,02	1,14	1,28	1,32	1,36	1,27	1,47
Z"	9,44	6,09	6,00	6,00	3,25	2,73	2,67	2,72	2,48	2,68	2,27	3,38
Gajdka & Stos (1996)	0,53	0,49	0,47	0,53	0,28	0,16	0,23	0,29	-0,13	-0,13	-0,16	0,06
Gajdka & Stos (2003)	1,23	0,93	0,74	0,78	0,51	0,05	0,20	0,30	0,17	0,11	0,05	0,37
Hołda	4,26	3,24	3,99	4,93	2,56	1,44	1,53	1,73	0,94	0,80	0,51	2,35
poznański	3,69	2,19	3,63	5,78	1,59	1,97	1,39	1,11	1,14	1,50	1,44	3,34
Mączyńska	3,32	2,67	2,18	2,33	2,31	0,52	1,01	1,45	0,80	0,61	0,37	1,81
Prusak (P1)	1,58	0,64	1,58	2,41	0,64	0,02	0,16	0,12	0,72	0,87	0,92	1,82
Prusak (P2)	0,60	-0,03	0,08	0,41	-0,27	-0,55	-0,57	-0,57	-0,17	-0,01	0,05	0,72
Wierzba	1,80	1,17	1,13	1,08	0,85	0,03	0,34	0,47	0,65	0,61	0,50	0,97
Hadasik	1,50	1,26	0,89	0,54	0,84	0,95	0,88	0,87	0,46	0,50	0,50	0,41
Springate	1,79	1,33	1,49	1,68	1,29	0,60	0,78	0,87	1,34	1,31	1,24	1,77
Fulmer	3,45	2,80	3,00	2,26	0,04		-1,09	-0,51	-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 criteria
- 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

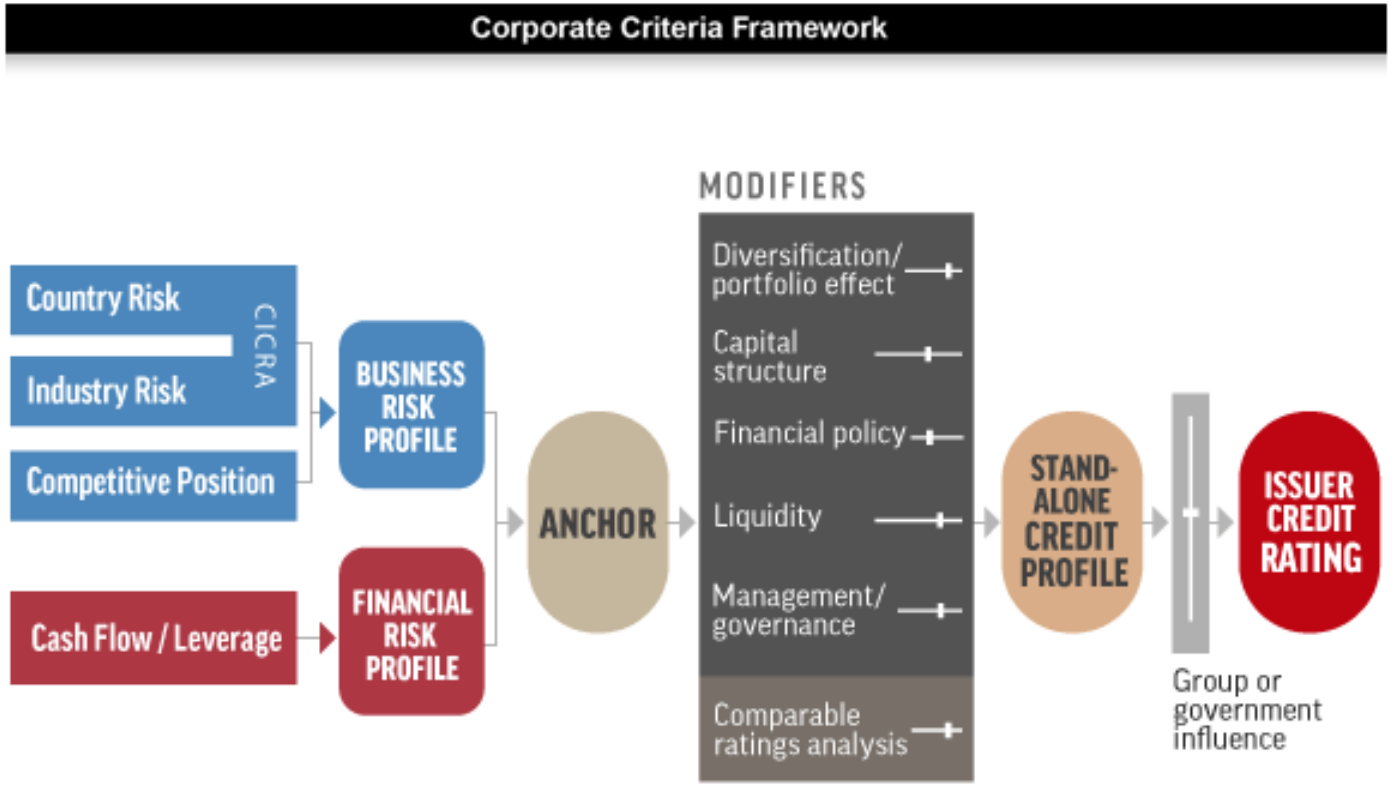
Broad Rating Factors	Factor Weighting	Rating Sub-Factors	Sub-Factor Weighting
Business Profile	20%	Business Profile	20%
Scale	20%	Revenue	20%
Profitability	10%	EBITA Margin	10%
Leverage and Coverage	40%	EBITA / Interest Expense	10%
		Debt / EBITDA	10%
		Retained Cash Flow / Net Debt	10%
		Free Cash Flow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



CUSTOMERS' PORTFOLIO – APPROACH FOR BETTER EFFICIENCY

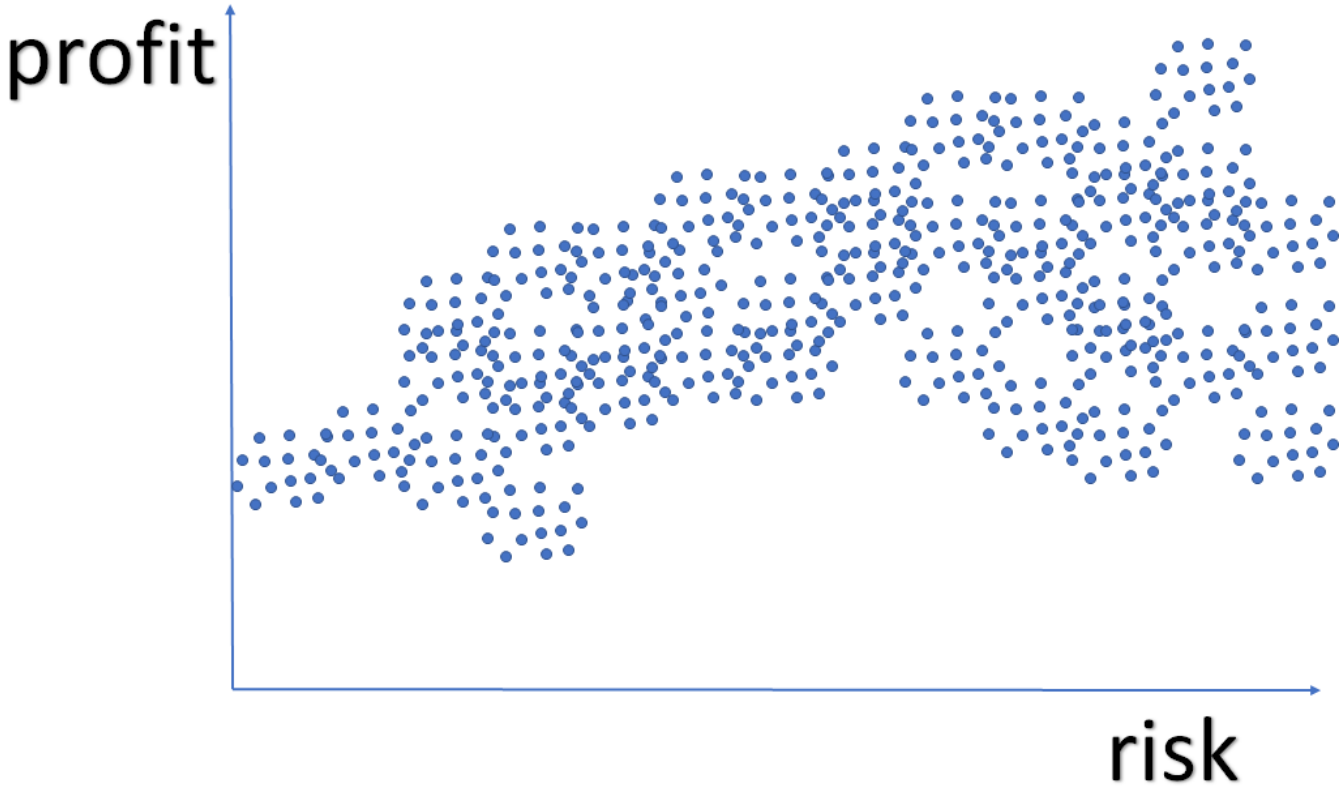
Large enterprises are granted thousands of trade credits for relatively small amounts:

- Risk analysis comes down to only a few selected parameters.
- In addition, counterparties are quite anonymous for those making credit decisions.

It is assumed that **with such a large number of loans, it is possible to estimate the probability of non-payment of the loan by an entity with selected features**, and then determine the statistical distribution of potential losses generated by difficult debts.

On this basis, you can calculate the expected loss on the portfolio. Part of this loss is compensated by **cost savings**, which is related to the simplification of the risk analysis of individual borrowers.

Customers' portfolio – approach for better efficiency



CUSTOMERS' PORTFOLIO – APPROACH FOR BETTER EFFICIENCY

With respect to a **single credit risk**, the following control instruments are distinguished:

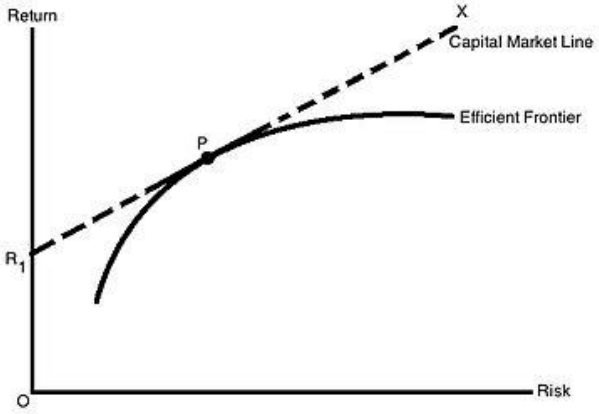
- **assessment of the borrower's creditworthiness**, i.e. examination of his creditworthiness both before granting the loan, i.e. at the stage of credit application evaluation and throughout the duration of the loan agreement, i.e. at the stage of monitoring receivables,
- **assessment of collateral** in the aspect of the company's risk, that is, the feasibility of the valuation of collateral, and their possible enforceability in the case of difficult loans, and thus the degree of liquidity of collateral,
- **limiting the amount of credit granted** if the borrower fails to meet the terms of the loan granted or if the borrower loses the creditworthiness.

With regard to the **loan portfolio**, an enterprise may use the following credit risk management instruments:

- **diversification**, i.e. quantitative and qualitative spread of credit risk, the less correlated loans in the loan portfolio, the smaller the total credit risk,
- **monitoring** of the loan portfolio,
- loan portfolio **modeling**,
- risk **transfer**.

CUSTOMERS' PORTFOLIO – THEORIES

- **Harry Markowitz** (1952 r.) - **diversification**
- **Black, Scholes i Merton** (1973 r.) - portfolio consisting of a derivative and a basic instrument - a **risk-free investment**
- **Technological breakthrough** that occurred in the field of data processing and transmission and enabled the practical use of complex mathematical models.



$$C = SN(d_1) - N(d_2)Ke^{-rt}$$

C = Call premium
S = Current stock price
t = Time until option exercise
K = Option striking price
r = Risk-free interest rate
N = Cumulative standard normal distribution
e = Exponential term

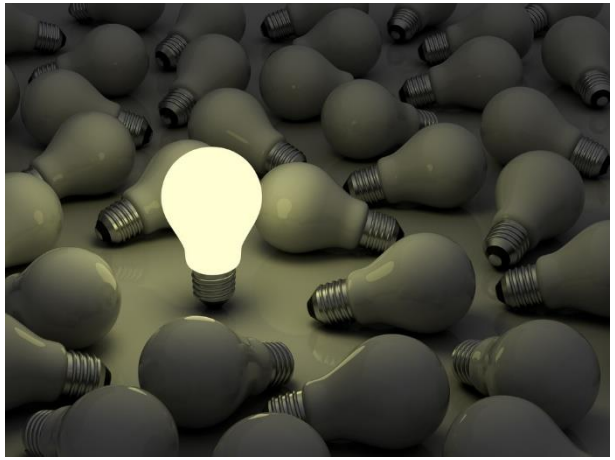
s = St. Deviation
ln = Natural Log

$$d_1 = \frac{\ln\left(S/K\right) + \left(r + s^2/2\right)t}{s \cdot \sqrt{t}}$$

$$d_2 = d_1 - s \cdot \sqrt{t}$$

Creditworthiness modeling

Specific factors in creditworthiness assessment



I. The rationale behind taking into account specific factors in creditworthiness assessment
II. Financial and non-financial factors
III. Branch, size and region

SPECIFICITY IN THE CREDIT ANALYSIS

What to look for?

WHERE to find the information you need?

So to find KEY for good credit analysis

SPECIFICITY IN THE CREDIT ANALYSIS

Non-financial specifics could include:

- Seasonality of sales
- Technological advancement
- Human capital and related difficulties in the appropriate selection of personnel
- Regulatory and legal environment
- Production process and types of goods and services produced
- Entry and exit barriers
- Specificity of the proximal and distal environment
- Different image depending on the industry
- The life cycle of the product and the companies themselves
- Development prospects of the industry

SPECIFICITY IN THE CREDIT ANALYSIS

Taking into consideration the **financial** characteristics of the specificity, focus should be on:

- Comparative analysis of financial indicators
- Various business financing strategies
- The structure of current assets
- Cost and structure of capital
- Cash conversion cycle
- Customer financing strategies and payments to suppliers
- Available sources of financing activities
- Payment morality depending on the industry

INFORMATION SOURCES

Inf_Pras_Coface_Ryzyka_sektorowe_30112016 (http://www.coface.pl/AKTUALNOSCI-I-MEDIA/Publikacje) http://www.egospodarka.pl/89104,Ryzyko-dzialalnosci-gospodarczej-wg-branz,1,39,1.html

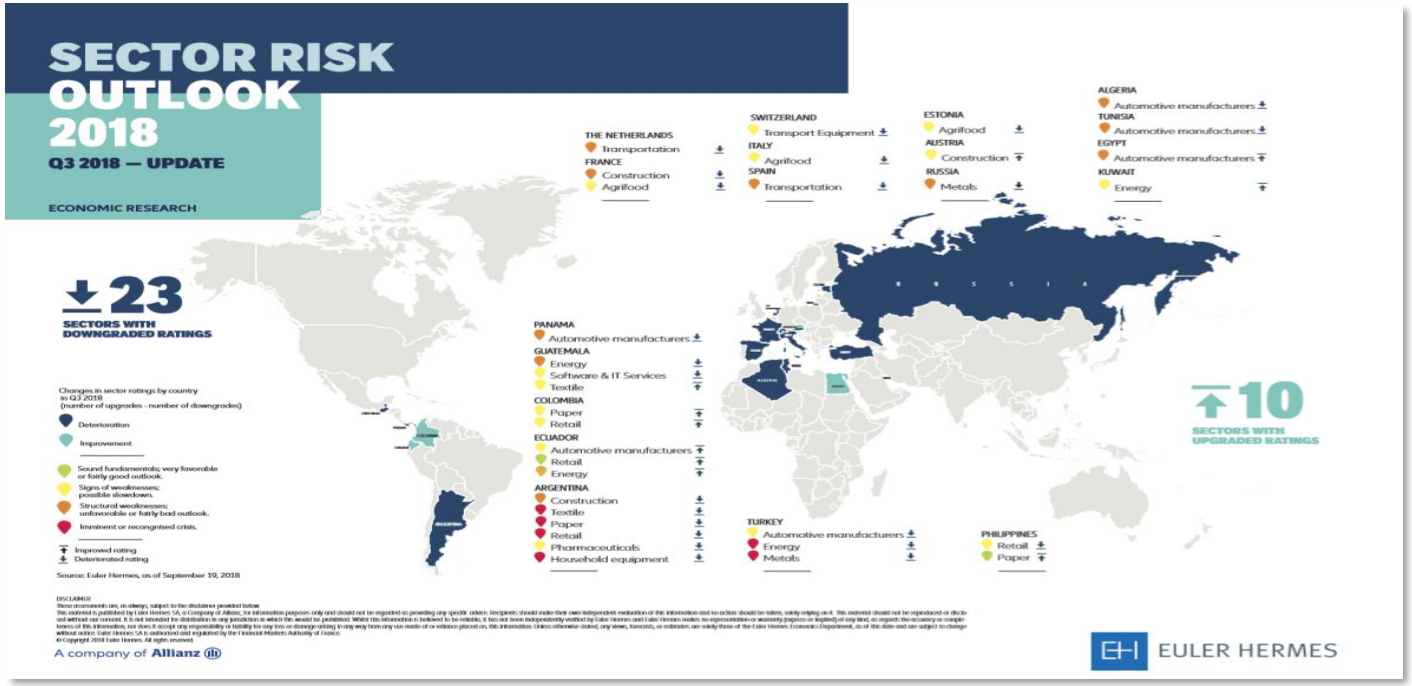
http://www.ibngr.pl/Publikacje/Mapa-Ryzyka-Inwestycyjnego

http://www.eulerhermes.pl/analizy-ekonomiczne/Pages/default.aspx

http://www.kuke.com.pl/serwis-ekonomiczny/sytuacja-finansowa-branz/

https://atradius.co.uk/industry-performance-forecast.html#

Detailed analysis prepared for economy sectors – GUS, Eurostat, GPW, Reuters, Euler Hermes, Coface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Construction
Agrifood
SWITZERLAND
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Agrifood
SPAIN
Transportation
ESTONIA
Agrifood
AUSTRIA
Construction
RUSSIA
Metals
ALGERIA
Automotive manufacturers
TUNISIA
Automotive manufacturers
EGYPT
Automotive manufacturers
KUWAIT
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Automotive manufacturers
GUATEMALA
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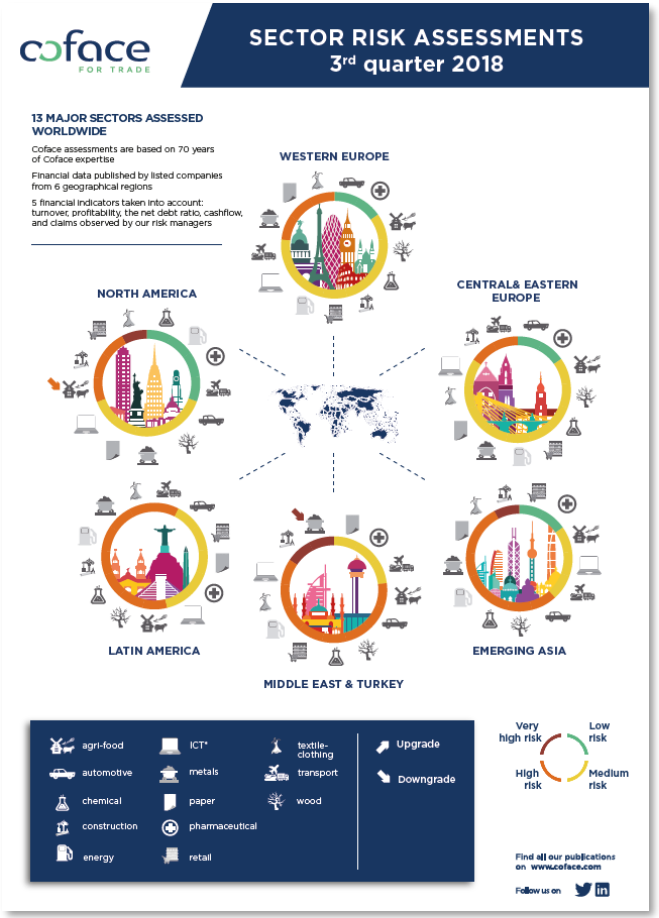
Energy
ARGENTINA
Construction
Textile
Paper
Retail
Pharmaceuticals
Household equipment
TURKEY
Automotive manufacturers
Energy
Metals
PHILIPPINES
Retail
Paper
Deterioration
Improvement
Sound fundamentals; very favorable or fairly good outlook.
Signs of weaknesses; possible slowdown.
Structural weaknesses; unfavorable or fairly bad outlook.
Imminent or recognised crisis.
Improved rating
Deteriorated rating
Source: Euler Hermes, as of September 19, 2018
A company of Allianz
EULER HERMES


coface FOR TRADE
SECTOR RISK ASSESSMENTS
3rd quarter 2018
13 MAJOR SECTORS ASSESSED WORLDWIDE
Coface assessments are based on 70 years of Coface expertise
Financial data published by listed companies from 6 geographical regions
5 financial indicators taken into account: turnover, profitability, the net debt ratio, cashflow, and claims observed by our risk managers
WESTERN EUROPE
NORTH AMERICA
CENTRAL& EASTERN EUROPE
LATIN AMERICA
MIDDLE EAST & TURKEY
EMERGING ASIA
agri-food
automotive
chemical
construction
energy
ICT*
metals
paper
pharmaceutical
retail
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transport
wood
Upgrade
Downgrade
Very high risk
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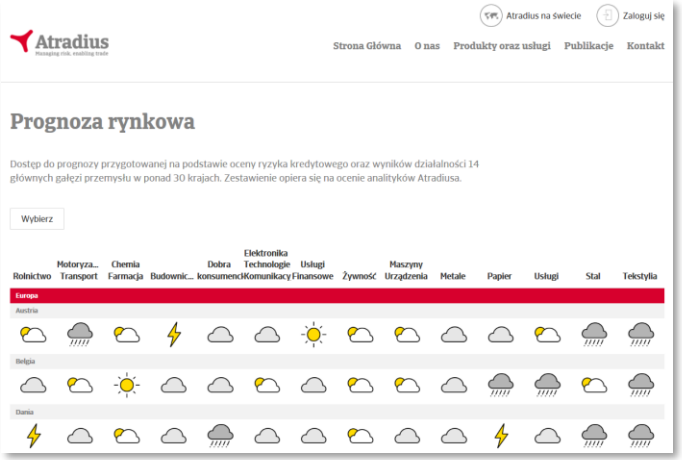
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Atradius na świecie
Zaloguj się
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Kontakt
Prognoza rynkowa
Dostęp do prognozy przygotowanej na podstawie oceny ryzyka kredytowego oraz wyników działalności 14 głównych gałęzi przemysłu w ponad 30 krajach. Zestawienie opiera się na ocenie analityków Atradiusa.
Wybierz
Rolnictwo
Motoryza... Transport
Chemia Farmacja
Budownic...
Dobra konsumenci
Elektronika Technologie Komunikacy
Usługi Finansowe
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Metale
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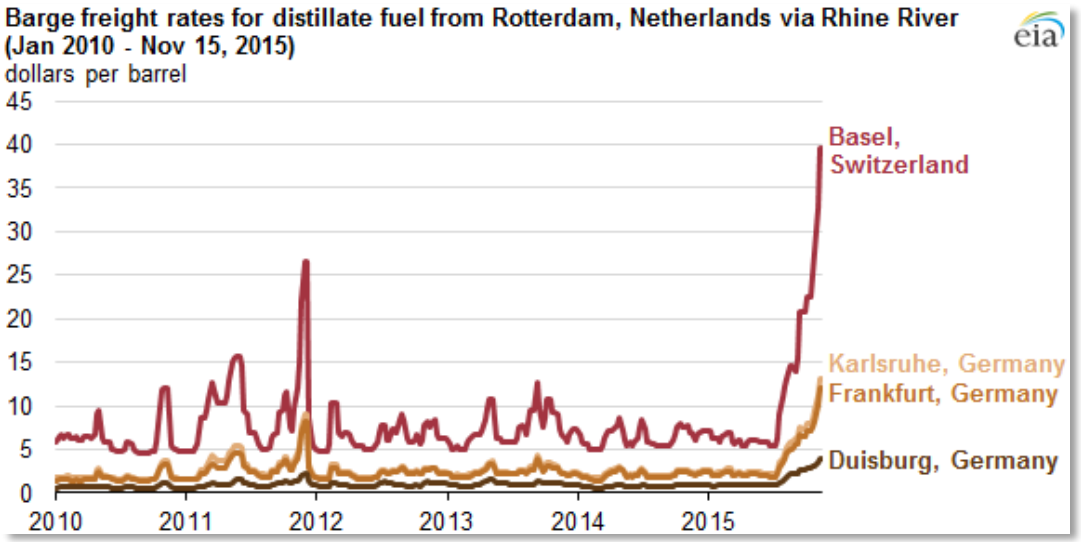
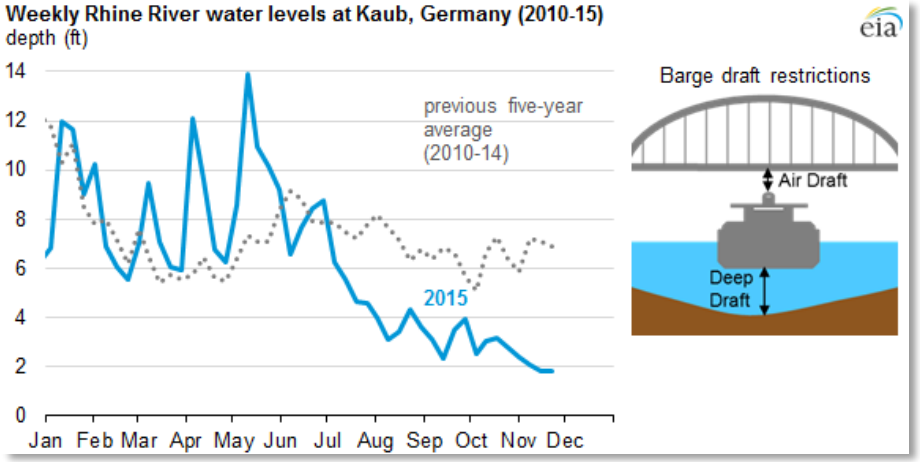
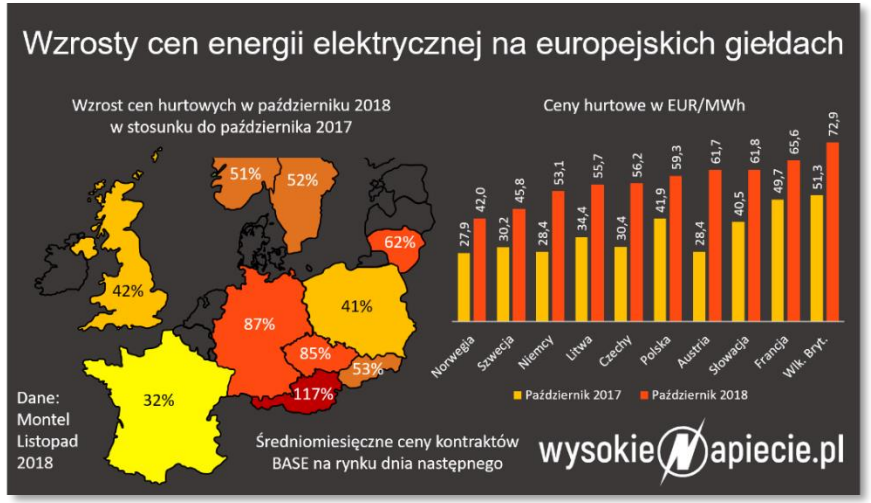

Barge freight rates for distillate fuel from Rotterdam, Netherlands via Rhine River
(Jan 2010 - Nov 15, 2015)
dollars per barrel
45
40
35
30
25
20
15
10
5
0
2010
2011
2012
2013
2014
2015
Basel, Switzerland
Karlsruhe, Germany
Frankfurt, Germany
Duisburg, Germany
eia


Rhine River, Northwest Europe
North Sea
Amsterdam
Netherlands
Rotterdam
Duisburg
Antwerp
Germany
Belgium
Rhine River
Kaub
Frankfurt
Main River
Lux.
Mosel River
Karlsruhe
Neckar River
France
Basel
Switzerland
eia


Weekly Rhine River water levels at Kaub, Germany (2010-15)
depth (ft)
14
12
10
8
6
4
2
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
previous five-year average (2010-14)
2015
Barge draft restrictions
Air Draft
Deep Draft
eia



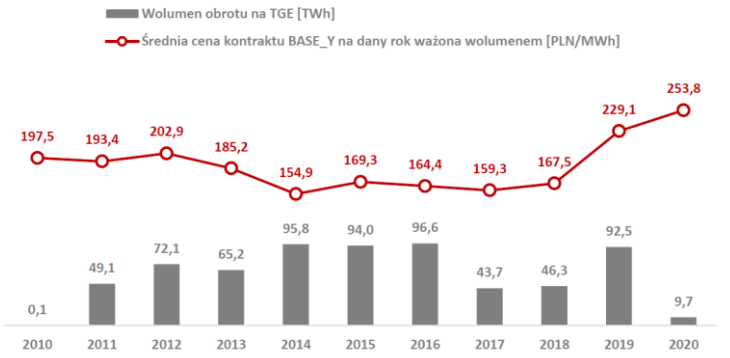
Źródło: Instytut Jagielloński, *Mapa Drogowa Polskiej Elektroenergetyki 2030+* (http://jagiellonski.pl/files/other/1536001275.pdf)

Tab. 2. Prognozowana dynamika kosztów energii elektrycznej w poszczególnych sektorach gospodarki

	2019 vs 2016	2020 vs 2016	Elektrochłonność [GWh/mld PLN] za rok 2016
GÓRNICTWO	54,5%	77,2%	316,6
BUDOWNICTWO	53,7%	75,9%	7,3
USŁUGI	53,3%	75,3%	46,3
ROLNICTWO	50,1%	70,8%	36,9
TRANSPORT	40,5%	57,1%	42,3
PRZETWÓRSTWO PRZEMYSŁOWE	41,1%	57,0%	152,3
WODA, ŚCIEKI, ODPADY	36,3%	49,9%	122,4
RAZEM Sektory	47,0%	65,9%	
Wzrost cen kontraktu BASE_Y	39,4%	54,4%	

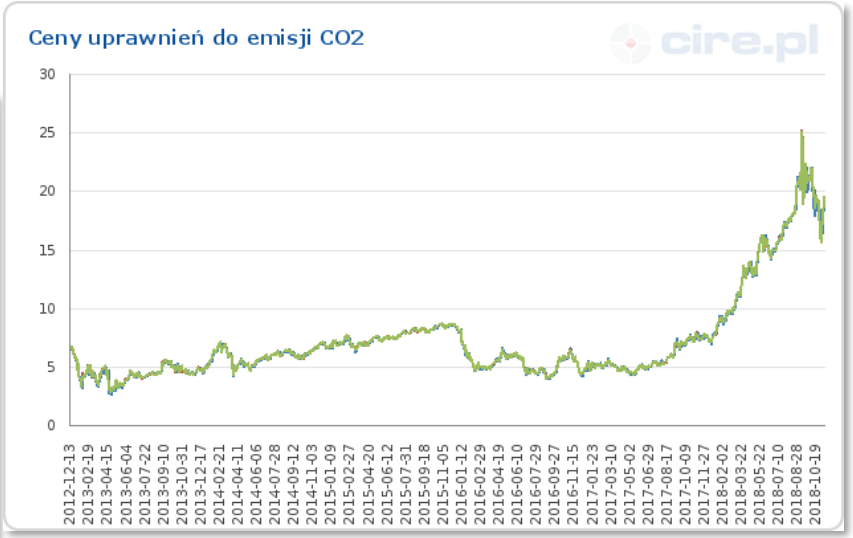
Źródło: opracowanie własne na podstawie danych GUS

Rys. 1. Średnie roczne ceny referencyjnego kontraktu na dostawy energii elektrycznej (BASE_Y) na lata 2010-2020



UWAGA: kontrakty na rok 2020 notowane są obecnie na dwa lata przed dostawą (stąd wolumen obrotu jest relatywnie niski), podczas gdy pozostałe kontrakty zostały zaprezentowane dla notowań, które miały miejsce w roku R-1, tj. na jeden rok przed dostawą.

Źródło: opracowanie własne na podstawie danych Towarowej Giełdy Energii



K-N-O-W

Not everything could be avoided, including giving a credit line to the customer which went into a financial liquidity trouble. Nevertheless, the empirical and academical studies shows that **bankruptcy is a process which could be anticipated**. To forecast the problems of your customer, you need a set of tools and habits which you must implement in your daily credit management process.

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Case studies and recent insolvencies

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CASE STUDIES AND RECENT INSOLVENCIES

SolarWorld is a German company dedicated to the manufacture and marketing photovoltaic products worldwide by integrating all components of the solar value chain, from feedstock (polysilicon) to module production, from trade with solar panels to the promotion and construction of turn-key solar power systems. The group controls the development of solar power technologies at all levels in-house.
SolarWorld AG is listed on the Frankfurt Stock Exchange, the Photovoltaik Global 30 Index and the ÖkoDAX.

On Aug. 18, 2017, however, news came that the German administrator of SolarWorld AG's bankruptcy had put SolarWorld Americas up for sale, though no potential buyers had been identified at that time. The US-based subsidiary, which reportedly produced half of "SolarWorld" branded modules worldwide, was put "in something of a limbo" by the bankruptcy and a spokesperson stated the company had entered an "open ended" mergers and acquisitions process.

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MANUFACTURING

SolarWorld Files for Insolvency, Citing 'Ongoing Price Erosion'

"Given current module price trends, this isn't surprising."

JULIA PYPER | MAY 10, 2017

SolarWorld has led several trade cases against Chinese solar manufacturers for allegedly dumping solar modules in the U.S. and Europe. The U.S. Commerce Department set anti-subsidy rates on most Chinese solar imports in 2012, and revises them annually. Tariffs, which vary by supplier, averaged 29.5 percent for 2016.

The woes of Western solar manufacturers have persisted, however. Prices across the upstream solar value chain started to decline in the second half of 2016 and have continued to nosedive. In March, SolarWorld issued a statement claiming that China's trade aggression continues to trigger bankruptcies and layoffs, and called on the Trump administration to address solar trade during President Xi's U.S. visit in April.

U.S. Imposes Steep Tariffs on Chinese Solar Panels

A Chinese solar panel company. A flood of inexpensive solar products put many American manufacturers out of business. Kevin Frayer/Getty Images

By Diane Cardwell

Dec. 16, 2014

The Commerce Department began closing a chapter in a protracted trade conflict with China over solar equipment Tuesday, approving a collection of steep tariffs on imports from China and Taiwan.

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E&E NEWS

ENERGY

Why China Is Dominating the Solar Industry

Between 2008 and 2013, China's solar-electric panel industry dropped world prices by 80 percent

By John Fialka, ClimateWire on December 19, 2016

Case studies and recent insolvencies

Cenveo®

Cenveo is a company based in Stamford, Connecticut engaged in the manufacture of various print-related products.[4] Founded in 1921 as Denver-based Rockmont Envelope, the company's products and services include printed labels, packaging and digital print products, print magazine and book solutions, mailing solutions and creative services, and inventory and warehouse management software.
In January 2018 Cenveo filed for Chapter 11 bankruptcy citing overwhelming debt to multiple lenders.

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BUSINESS MANAGEMENT — February 2, 2018

Cenveo Chapter 11 Bankruptcy Filing Announced; Mega-Printer Secures DIP Financing

By Mark Michelson

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COMMENTS

Stamford, Conn.-based Cenveo Inc., which has been struggling due to lower consumer demand for paper-based envelopes and debt from its past acquisitions as a printing industry roll-up consolidator - such as the $430 million it paid in 2006 for scientific, technical and medical (STM) journal printer Cadmus Communications - announced that it has reached an agreement with holders of a majority of its first-lien debt to support a voluntary Chapter 11 bankruptcy plan of reorganization. Filed under the U.S. Bankruptcy Code in the Southern District of New York, White Plains, the filing does not include its foreign entities, such as those located in India.

Cenveo Chairman and CEO Robert G. Burton Sr.

Bloomberg the Company & Its Products | Bloomberg Anywhere Remote Login | Bloomberg Terminal Demo Request

Bloomberg

Technology

The Internet Burns One More Paper-Based Business: the Envelope Maker

By Steven Church and Eliza Ronalds-Hannon

2 lutego 2018 16:51 CET *Updated on 2 lutego 2018 17:45 CET*

- Cenveo, North America's market leader, files for bankruptcy
- 'World passing them by' as 'snail mail' advertising declines

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Specificity in the credit analysis

THE RIGHT APPROACH TO CREDIT RISK ASSESSMENT

I. What is the best in the company internally?

II. The best approach to calculating credit limits

WHAT IS THE BEST IN THE COMPANY INTERNALLY?

Before deciding whether to use the buyer's credit to stimulate sales, the accompanying costs must be identified.

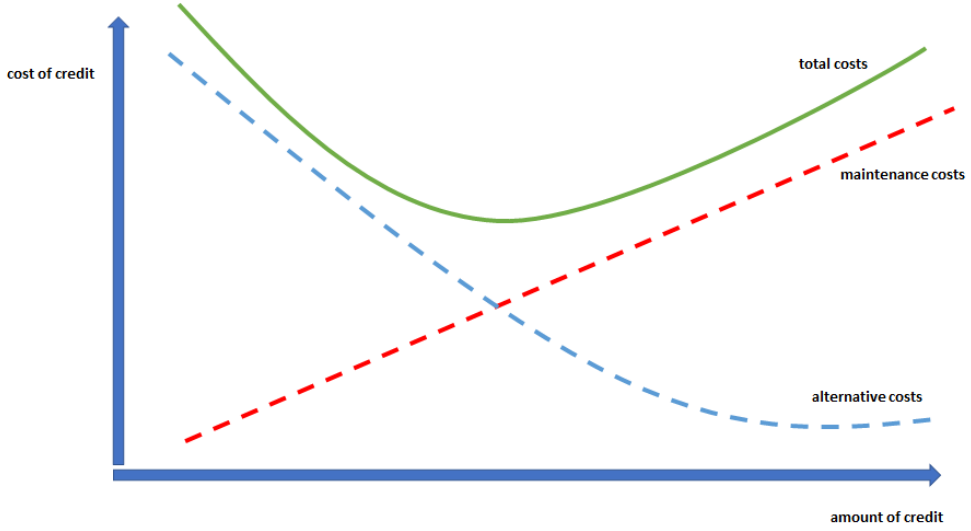
As part of costs related to receivables, two categories can be distinguished:

1. Receivables' **maintenance costs** (required rate of return on receivables, amount of losses due to bad debts, cost of loan management and collection of receivables)
2. **Alternative costs** (volume of lost sales resulting from refusing a loan)

WHAT IS THE BEST IN THE COMPANY INTERNALLY?

The sum of costs of maintaining receivables and alternative costs for a given credit policy is called the **credit costs curve**.

On this curve, you can **determine the point at which costs are minimal**, as shown in the chart below. The optimal loan size is determined by the point at which the increase in cash flows due to the increase in sales is equal to the increase in the cost of maintaining the receivables. In practice, **determining this optimal point is extremely difficult**.



THE BEST APPROACH TO CALCULATE CREDIT LIMITS

The easiest approach is to set a **credit limit based on the value and number of shipments** (invoices) and payment terms

Another way is to try to **base itself on the liquidation valuation model of the enterprise**, calculated in a simplified way using the Wilcox equation. The liquidation method consists in the valuation of the company's assets at the liquidation value:

cash + securities easily transferable

+ 70% of the book value of inventories, receivables and advances

+ 50% of the book value of other assets

- Current liabilities

- Long-term liabilities

The best approach to calculate credit limits

QUESTIONS?

THANK YOU!

Next – August 5th:

- repetition
- knowledge check
- case study