Trends in the global economy in 2020

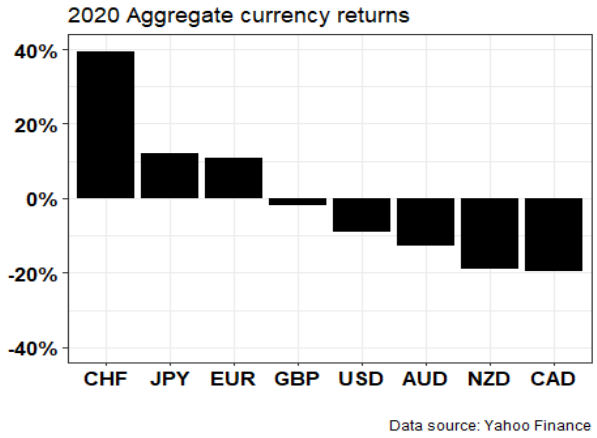
Commentary:

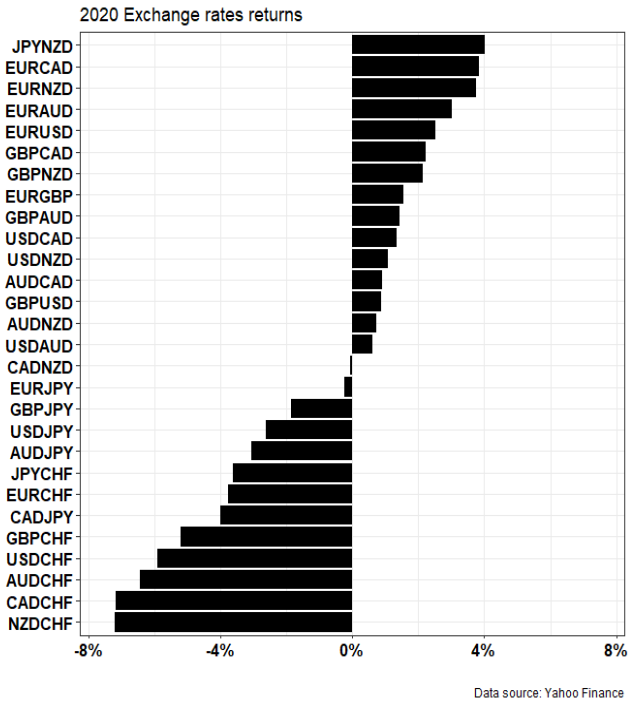
The Swiss franc was the highest performer amid major currencies in 2020 (upper chart), as the global economy was hit by coronavirus pandemic, which prompted many questions on future development. Under increased uncertainty safe-haven currencies e. g. CHF, JPY, and the USD usually tend to strengthen vis-à-vis all major currencies. Such situation is clearly present in 2020 developments. The 2020 returns of individual foreign exchange rates (lower chart) also indicate that Swiss franc and Japanese yen strengthening was indeed a broad phenomenon.

The worst performance was present amid commodity and higher-interest currencies e. g. AUD, NZD, CAD, as reflection of global production decrease and thus falling commodity demand due to pandemic crisis.

Note:

- better use UNCTAD data if available
- changes in annual means were used for exchange rates returns calculation





R:

```
library(quantmod)
library(tidyverse)

# Import dat z yahoo finance ----------------------------------------------


currencies <- c("EURCHF=X", "EURGBP=X", "EURUSD=X", "EURCAD=X", "EURJPY=X",
"EURNZD=X", "EURAUD=X", "GBPCHF=X", "GBPUSD=X", "GBPCAD=X", "GBPJPY=X",
"GBPNZD=X", "GBPAUD=X", "USDCHF=X", "USDCAD=X", "USDJPY=X", "USDNZD=X",
"USDAUD=X", "AUDCHF=X", "AUDCAD=X", "AUDJPY=X", "AUDNZD=X", "CADCHF=X",
"CADJPY=X", "CADNZD=X", "JPYCHF=X", "JPYNZD=X", "NZDCHF=X")

data.env <- new.env()
getSymbols.yahoo(currencies, env = data.env, periodicity = "monthly",
                 from = "2018-01-01", to = "2020-12-31"
                 )

data <- currencies %>% as.list() %>% lapply(get, envir = data.env)

# Transformace dat (roční průměr, procentní vývoj měnového páru) ----------

# Ponechávám pouze cenu close a převádím list na xts matici
data <- data %>% lapply(Cl) %>% do.call(cbind.xts, .)

# Výpočet průměrného kurzu na roční bázi
data <- data %>% apply.yearly(FUN = mean)

# Procentní apreciace/depreciace kurzu
data <- (diff(data) / stats::lag(data)) * 100

# Očištění názvů od nadbytečných znaků
names(data) <- names(data) %>% str_remove(pattern = ".X.Close")

# Grafy -------------------------------------------------------------------

# graf jednotlivých měnových párů

graf1 <-
  data["2020"] %>%
  as_tibble() %>%
  pivot_longer(everything(), names_to = "ER", values_to = "return") %>%
  # Graf
  ggplot(aes(x = return, y = reorder(ER, return))) +
  geom_bar(stat = "identity", fill = "black") +
  labs(x = "", y = "", title = "2020 Exchange rates returns",
       caption = "Data source: Yahoo Finance") +
  scale_x_continuous(labels = function(x) paste0(x, "%"), limits = c(-7.5,
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7.5)) +
  theme_bw() +
  theme(axis.text = element_text(face = "bold", size = 12, color = "black"))
graf1

# graf agregátního vývoje
ER <- c("EUR", "CHF", "GBP", "JPY", "NZD", "AUD", "CAD", "USD")
ER_agg_return <- as_tibble(ER)
names(ER_agg_return) <- "currency"

for (i in 1:length(ER)) {

  ER_agg_return$return[i] <-

    data["2020"] %>% as_tibble() %>%
    select(contains(ER[i])) %>%
    mutate_at(vars(ends_with(ER[i])), ~ . * -1) %>%
    sum()

}

graf2 <-
  ER_agg_return %>%
  ggplot(aes(x = reorder(currency, -return), y = return)) +
  geom_bar(stat = "identity", fill = "black") +
  labs(x = "", y = "", title = "2020 Aggregate currency returns",
       caption = "Data source: Yahoo Finance") +
  scale_y_continuous(labels = function(x) paste0(x, "%"), limits = c(-40,
40)) +
  theme_bw() +
  theme(axis.text = element_text(size = 12, face = "bold", color = "black"))
graf2
```