Special Report

Economics and Strategy

NATIONAL BANK OF CANADA

FINANCIAL MARKETS

Canada's official reserves: Time for a review

Paul-André Pinsonnault / Jocelyn Paquet

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Summary:

- Canada's official reserves total more than US$80 billion, meeting the government's commitment to maintain liquid foreign exchange reserves of at least 3% of GDP. Recent international developments suggest, in our view, that a larger buffer may be justified going forward.
- A number of metrics are used to gauge the proper size and composition of the Exchange Fund Account (EFA). The exercise includes estimating portfolio value at risk and scenario analysis.
- We note that the hypothetical scenario used for stress testing mimic market conditions during six previous extraordinary market events in which the Federal Reserve was active in providing currency swap facilities to a range of foreign central banks. In a world of deglobalization, rising trade tensions, protectionism and loss of support for international cooperation from major international player(s), shouldn't scenario analysis be extended to include cases where such facilities would not be available from the Fed?
- Looking at challenges that the Bank of Canada might face and for which little experience is available, we would suggest giving thought to the consequences of the recent trend to use of the Canadian dollar as a reserve currency by other countries. So far, Canada has mostly been surfing the wave of inflows that have compressed yield spread to Treasuries as well as supporting the Canadian dollar. But what if this trend were suddenly reversed by economic or financial developments affecting specifically one or more of those countries?
- In a time characterized by heightened global economic and political risks, by expectation of persistently low interest rates despite potential inflationary pressures from deglobalization of supply chains, and by uncertainty about the future role of the USD in the international monetary system, it may be time to consider the return of gold to the Exchange Fund Account. We note that Canada is the only member of the G20 that doesn't hold any gold in its official reserves.

Canada's official reserves: Time for a review

Reserves: What they are and why hold them

A good starting point could be why reserves are held. In an IMF Working Paper, Bradley A. Jones writes:

"Precautionary reserves are held to defend the exchange rate against destabilizing capital outflows; to grant emergency foreign currency liquidity assistance to banks; and to lean against disorderly market conditions and/or valuation over-shooting. The operational functions served by reserves include facilitating regular international debt and import-related payments made on behalf of the government, serving as collateral to relax external borrowing constraints, and assisting with monetary policy related liquidity operations. Policy credibility, the exchange rate regime (fixed, floating, currency union), the degree of dollarization, range of domestic instruments available for monetary operations, and other (shock absorbing) characteristics of the economic and financial system all feature in the determination of the appropriate level of international reserves. The implication is that in an institutional and economic context whereby reserve management is strictly liability-driven, liquidity and safety are paramount."

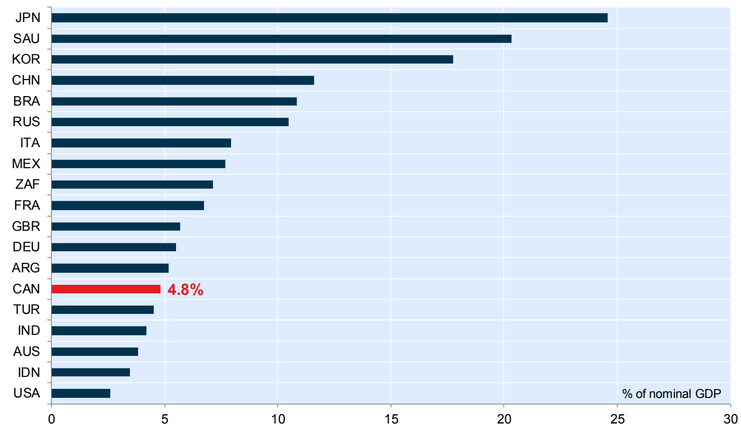
In looking at the composition of foreign reserves, we focus on the broad definition of total official reserves. They include foreign-currency reserves, gold (including gold deposit and swap), special drawing rights, the reserve position at the IMF and other reserves assets. These last could include prudential liquidity held by the government at the central bank, which could be used to cover refinancing needs if financial markets were to become temporarily dysfunctional.

Optimal reserve holdings

Historically, official reserves were modest in size and passively managed. They were composed of a small set of conservative investments such as non-yielding bullion and short-term bills. The situation has evolved since then. In response to the policy objectives of large emerging countries, foreign reserves have grown in size. This in turn brought a change of expectations for income from these assets and consequently for the risk tolerance demonstrated by their managers. This has meant larger allocations to assets with more pro-cyclical returns than traditional reserves assets, a more common use of derivatives and tactical strategies to enhance returns, and even the hiring of external asset managers to advise on asset classes where in-house expertise is lacking.

In the case of advanced economies with deep financial markets and with fiscal and monetary space to respond to adverse shock, precautionary reasons to hold reserves are not as large. Also, financial and economic globalization has made it beneficial to the U.S. to provide, via the Fed, currency swaps to foreign central banks in times of tumult. Nonetheless, authorities in advanced economies may have to rely on foreign reserves to moderate currency fluctuations when use of the interest-rate tool to smooth them could significantly crimp domestic demand.

Total official reserves of G-20 countries as % of nominal GDP
Gold + non-gold values, GDP at purchasing power parity



NBF Economics and Strategy (data via IMF)

A range of metrics for gauging optimal reserve holdings are advocated, from the number of months that imports could be sustained if export revenue and external financing were to dry up, to the number of months governments could operate without access to financial markets to roll over their short-term debt.

Others have used stress testing scenarios, with the resulting financing gap used to gauge the right level of reserves, with consideration for the funding cost (or positive carry) of that level. Also a factor in such an exercise is the value at risk (VAR) given the composition of the portfolio.

Washington Agreement

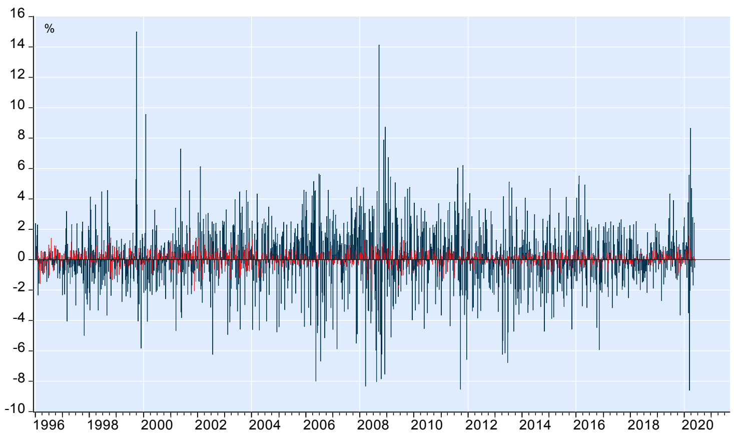
In early 1999, when gold accounted for 50% of U.K. foreign-currency reserves, an analysis showed that the value at risk of the net reserves could be reduced roughly 30%, if the proportion of gold was reduced from 50% to 20%.

An analysis that did not go unnoticed. In May 1999 the Bank of England made public the government's intention to cut the gold held in reserve at the central bank by 58%. The plan called for a series of auctions to be held every two months, reducing gold reserves from 715 tonnes to 300 tonnes over a number of years.

In support of the U.K.'s decision, it can be noted that from January 1999 to May 2002, the average 10-day volatility of the price of bullion was 8.5 times that of 1- to 3-year U.S. Treasuries and 2.3 times that of 7- to 10-year Treasuries.

With the benefit of hindsight, it is clear that gold was much more volatile than 3- to 5-year U.S. Treasuries in the year following the U.K. decision to reduce the weight of gold in its net reserves (chart).

Weekly change in gold price, weekly return of 3- to 5-year Treasuries



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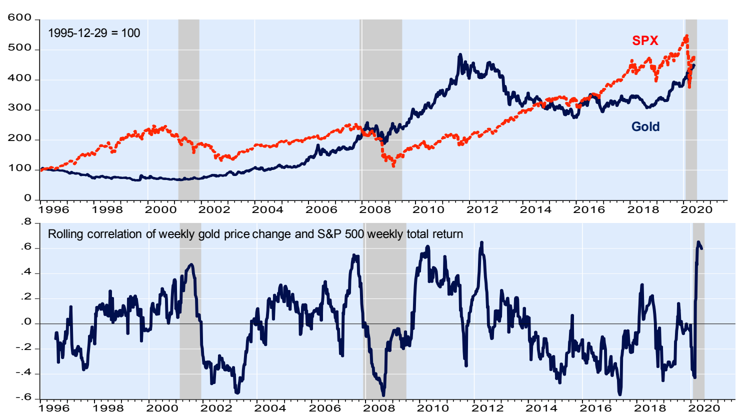
That said, it is well documented that riskier assets can improve the risk-reward portfolio attributes if their returns correlate less than perfectly with returns on other assets. Which is the case for gold. However, the proper mix depends on portfolio objectives and the investor's risk preference.

Relationship of price of gold and S&P 500 (SPX)
Price indexes and correlation of weekly change in gold price with weekly total return of gold and S&P 500



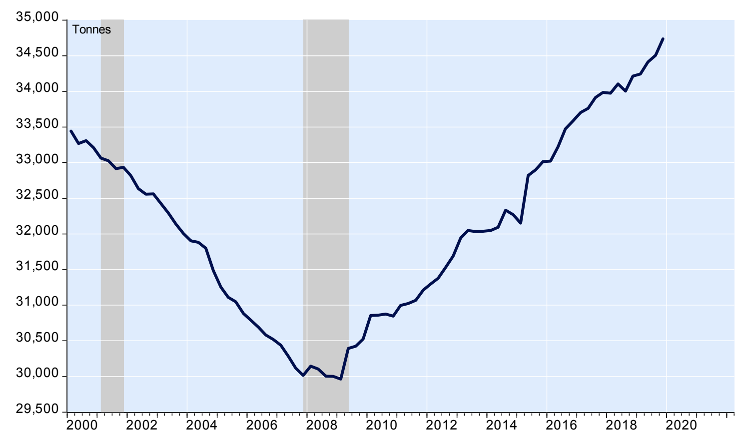
NBF Economics and Strategy (data via Bloomberg)

The U.K.'s decision to lower its reserve exposure to gold was not an isolated case in early 1999. In April, Switzerland passed legislation allowing its central bank to reduce its gold holdings by 1,300 tonnes. These developments came on the heels of large bullion sales by Belgium and the Netherlands. In that context, the unexpected BoE announcement was seen by many as likely to be followed by other central banks as well as by the International Monetary Fund. To many market participants it signalled a major change in the world monetary system if not the end of an era.

The effect was to destabilize the gold market, so much so that the ECB, together with the 11 central banks of nations then participating in the new European currency plus those of Sweden, Switzerland and the U.K., agreed to reiterate publicly that gold should remain an important part of global monetary reserves, and committed to limiting their annual sales over the next five years (September 1999 to September 2004). This so-called Washington Agreement on Gold was signed September 26, 1999. It was seen as capping European gold sales and contributed greatly to ending rampant speculation against bullion. The signatory banks agreed to review the agreement after five years, and ended up renewing it for three more 5-year periods while gradually making the terms less binding.

In September 2019 the Agreement was not renewed, since official institutions have been net buyers since the 2008-09 financial crisis in a bullion market whose liquidity and investor base has increased significantly.

World: Central banks are buying again
Official gold reserves



NBF Economics and Strategy (data via https://www.gold.org/goldhub/data/monthly-central-bank-statistics)

The Canadian experience

Canada's total official foreign exchange reserves are not included as assets on the Bank of Canada balance sheet. They belong to the federal government and are held largely in the Exchange Fund Account (EFA). The Bank acts as fiscal agent for the government and in collaboration with the department of finance advises the minister of finance on the funding and investments of the country's foreign exchange reserves.

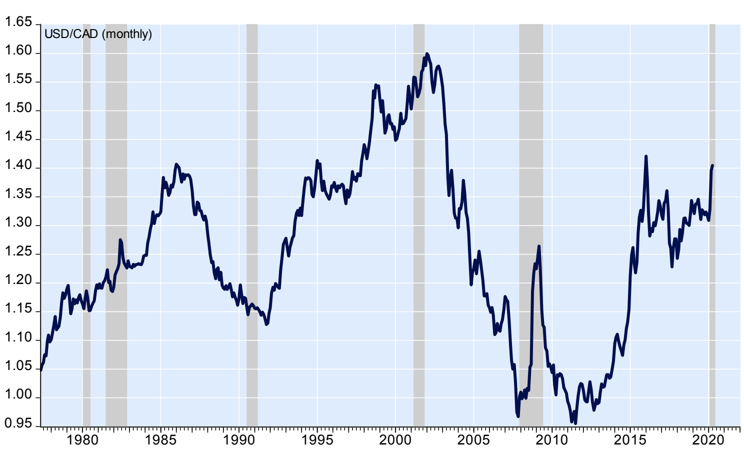
Among the guiding principles that the Bank of Canada must follow in its role as fiscal agent is that the "EFA shall be managed in a cost effective manner under an asset-liability matching framework, whereby the market value of assets and liabilities are matched to the extent possible by currency, term and/or duration, to mitigate the potentially negative impacts of movements in interest rates and foreign exchange rates on the Government's fiscal position." To fulfil its mandate the

Bank has developed a framework for asset-liability management (ALM). The model takes into account the level of risk and preference for liquid assets, and balances the transaction cost of meeting a call on reserves with the need to ensure that the remaining assets are liquid enough to meet potential future calls on reserves at reasonable cost. This approach allows maximization of net return of the EFA under the specific constraints to be satisfied.

The model has much to say about the composition of EFA assets and liabilities. But what about the size of the fund?

The answer is influenced by a number of factors, involving expert judgments based on the Canadian experience. As noted by Bank of Canada deputy governor Timothy Lane in a speech of February 6, 2019, our floating-exchange-rate regime, in which fluctuations in the currency buffer the domestic economy from international events, means that the Bank has not intervened to stabilize the exchange value of the loonie despite large swings over the last 20 years. "There have, however, been a couple of occasions over that period when Canada participated in concerted intervention along with other nations," he noted – to support the Euro in September 2000 or in 2011 to stem "disorderly movements in the exchange rate of the Japanese yen following the earthquake and resulting tsunami and nuclear crisis at the Fukushima nuclear plant." This record is in stark contrast with the period from 1995 to 1998 when the Bank intervened about 150 times to smooth movements of the exchange rate. "By 1998, we had concluded that such interventions weren't particularly effective."

Canada: A freely floating exchange rate
Canada/U.S. exchange rate

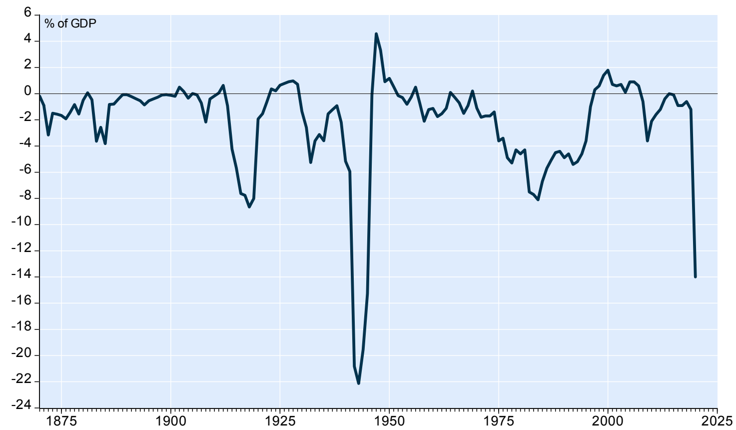


NBF Economics and Strategy (data via Fred)

Still, the EFA will provide the Bank with munitions to intervene should market breakdown with extreme price volatility put the economy and the soundness of the financial system at risk. **The fund is also there to provide the federal government with liquidity to meet its financial obligations in a situation where normal access to funding may be disrupted or delayed.**

As an example of the latter consideration, we would point to the federal government's active provision of liquidity to households and businesses in response to Covid-19. At present the Parliamentary Budget Officer projects a federal deficit of about $260 billion in the current fiscal year. To meet this new financial requirement the volume of Canada bonds issuance has skyrocketed. **Given the expectation that it will take time for the economy to recover, we wonder whether an upward revision of prudential liquidity holdings is in the offing.**

Canada: Historical perspective on deficits (-) and surpluses (+)
Federal government budgetary balance



NBF Economics and Strategy (data via Fraser Institute and PBO)

More generally, a number of metrics are used to gauge the proper size of a war chest. The exercise includes estimating portfolio value at risk and scenario analysis. As of April 2020, EFA assets totalled more US$80 billion (63% of which were in U.S. dollars) meeting the government`s commitment to maintain liquid foreign exchange reserves of at least 3% of GDP.

According to the finance department's Report on the Management of Canada's Official International Reserves, the stress-testing exercise included "hypothetical scenario analyses that mimic market conditions during six previous extraordinary market events" – "the tightening of monetary policy by the US Federal Reserve in 1994; the 1997 Asian financial crisis; the 1998 Russian debt default and Long-Term Capital Management (LTCM) collapse; the 2001 terrorist attacks on the US; the 2008 financial crisis; and the 2010 European debt crisis. The scenario analyses showed that the EFA would generally perform well during such periods of market turbulence."

We note that most of the scenario mimicry was of international situations in which the U.S. Federal Reserve was active in providing currency swap facilities to a range of foreign central banks. In a world of deglobalization, rising trade tensions, protectionism and loss of support for international cooperation from major player(s), shouldn't scenario analysis be extended to include cases where such facilities would not be available from the Fed? And what if the international monetary system were to start moving more rapidly from being largely USD-centric toward a multipolarity in which China has a larger footprint? **One can wonder whether the current EFA assets are well-suited to enhancing confidence in the loonie and the Canadian financial system in what could be a volatile transition toward a new international monetary order.**

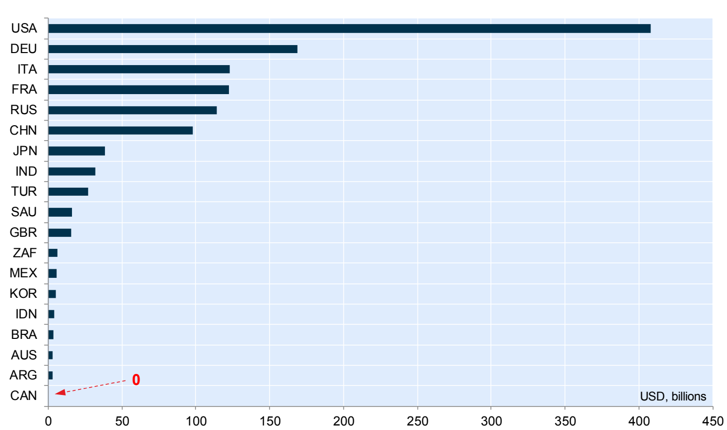
Looking further at challenges that the Bank might face and for which little experience is available, we would suggest giving thought to the consequences of the recent trend to use of the Canadian dollar as a reserve currency by other countries. So far, Canada has mostly been surfing the wave of inflows that have compressed yield spread to Treasuries as well as supporting the Canadian dollar. But what if this trend were suddenly reversed by economic or financial developments affecting specifically one or more of those countries?

Developments in Canada's credit rating and growth outlook could also be triggers bringing not only private runs on our currency but also pro-cyclical CAD selloffs by international institutions, resulting in potentially unexpected stress on the loonie, financial stability and the EFA.

These are not forecasts, but such scenarios should certainly be part of the stress testing.

So if past experience suggests that an EFA worth not quite 5% of GDP is sufficient, more recent international developments suggest that a larger buffer may be justified going forward, especially considering that over the last 10 years, according to Timothy Lane, other advanced economies have maintained foreign reserves averaging 13% of GDP and emerging economies 20% of GDP, with gold accounting for large portions of their reserves. **We note that Canada is the only member of the G20 that doesn't hold any gold in its official reserves (chart).**

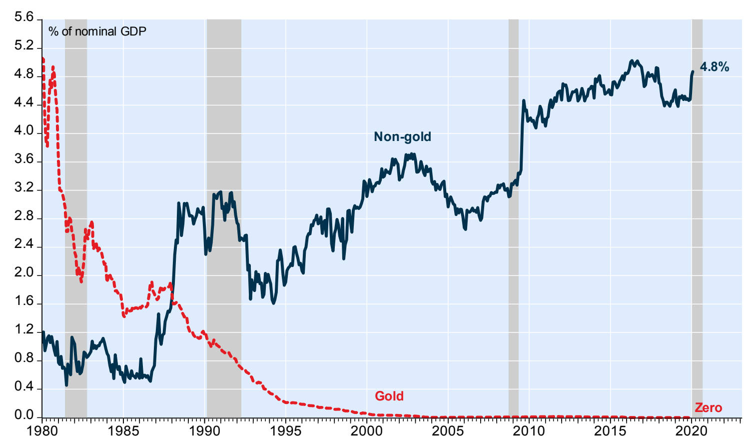
Market value of gold reserves held by G-20 countries
January 20020



NBF Economics and Strategy (data via the IMF)

In 1980, Ottawa implemented a policy of selling its gold. At the time, the commodity was considered lacking in liquidity, especially compared to U.S. Treasuries. As noted above, the liquidity and buyer base of gold have increased significantly since then. Moreover, the current interest-rate environment is quite different. In the year of the decision to sell gold, the 3-month U.S. T-Bill yield averaged 11.35%, today it is 0.14%. Back in 1980, it was also considered that physical delivery could mean significant delivery and storage costs. Forty years later, some ETFs may provide a cost-efficient alternative.

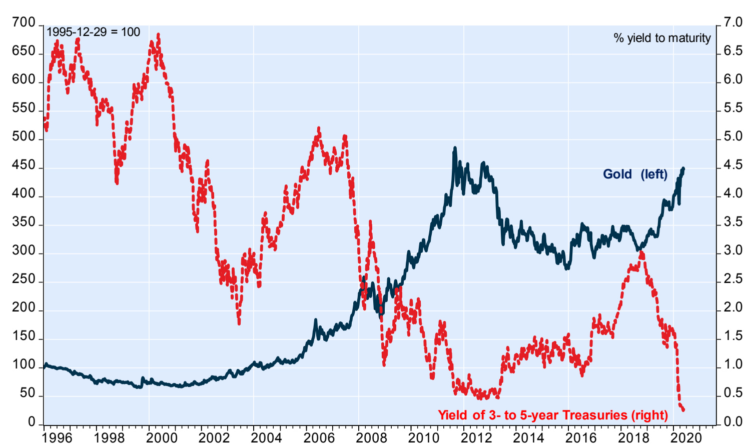
Canada: Gold vs. non-gold official reserves as % of nominal GDP



NBF Economics and Strategy (data via IMF)

That said, it remains true that gold does not fit in the current investment guidelines of the EFA, which instruct the fiscal agent to operate in an asset-liability-matching framework. But when we look at the challenges Canada could face in coming years, we are not sure the current EFA investment guidelines are still optimal.

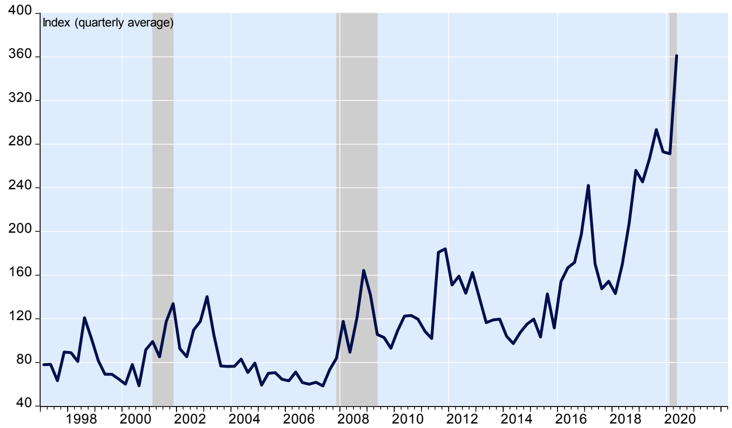
Price of gold and yield of 3- to 5-year Treasuries since 1996



NBF Economics and Strategy (data via Bloomberg)

In a time characterized by heightened global economic and political risks, by expectation of persistently low interest rates despite potential inflationary pressures from deglobalization of supply chains, and by uncertainty about the future role of the USD in the international monetary system, it may be time to consider the return of gold to the Exchange Fund Account.

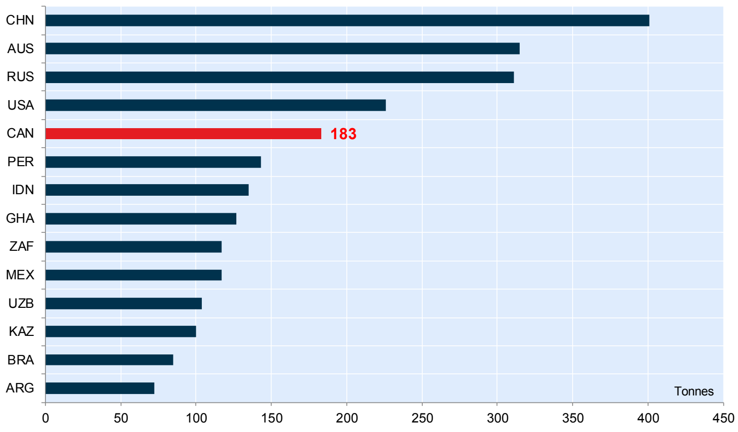
World: A most uncertain environment
Index of global political uncertainty



NBF Economics and Strategy (data via http://www.policyuncertainty.com/global_monthly.html)

On a different note, many sectors of the Canadian economy will need not only bridge financing to get past the shutdown dictated by the Covid-19 pandemic, but government spending in the recovery phase to return the economy to its previous level. Infrastructure spending could be part of the answer, but why not add some support for the Canadian mining industry? Gold purchases by the EFA could kill two birds with one stone, strengthening the Exchange Fund Account while supporting an important Canadian industry.

World: Leading gold-producing countries in 2018



NBF Economics and Strategy (Source: U.S. Geological Survey)

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Economics and Strategy

Montreal Office
514-879-2529

Stéfane Marion
Chief Economist and Strategist
stefane.marion@nbc.ca

Matthieu Arseneau
Deputy Chief Economist
matthieu.arseneau@nbc.ca

Krishen Rangasamy
Senior Economist
krishen.rangasamy@nbc.ca

Paul-André Pinsonnault
Senior Economist
paulandre.pinsonnault@nbc.ca

Marc Pinsonneault
Senior Economist
marc.pinsonneault@nbc.ca

Kyle Dahms
Economist
kyle.dahms@nbc.ca

Jocelyn Paquet
Economist
jocelyn.paquet@nbc.ca

Angelo Katsoras
Geopolitical Analyst
angelo.katsoras@nbc.ca

Toronto Office
416-869-8598

Warren Lovely
Chief Rate Strategist, Economics and Strategy
warren.lovely@nbc.ca

Taylor Schleich
Associate, Rates Strategist, Economics and Strategy
taylor.Schleich@nbc.ca

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