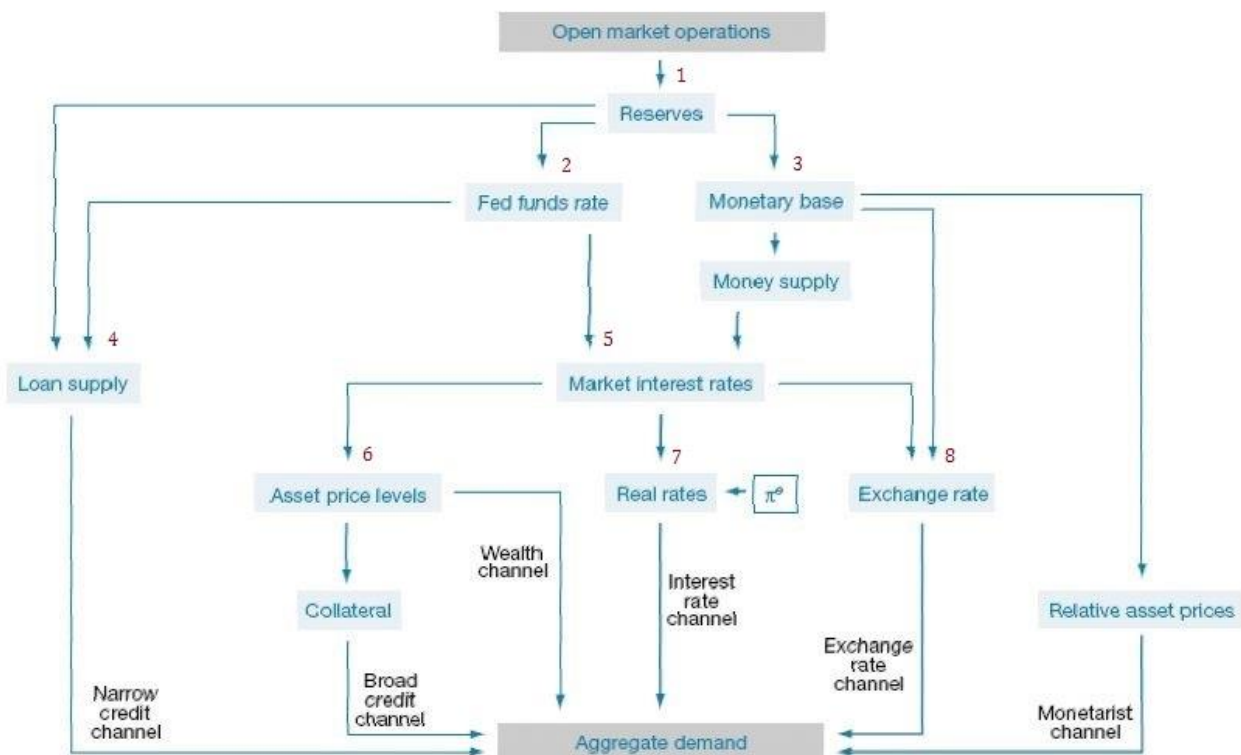


Over time, markets tend to move based on underlying corporate earnings, mainly because current prices represent the present value of future cash flows (earnings). Every day, market participants evaluate a multitude of different variables and decide how they believe those variables will affect future cash flows. The more adverse variables, the more market volatility. Arguably the most important thing to understand however, is the relationship that different variables have with each other. In today's globalized economy, low interest rates in the U.S. can effect a consumer loan in Jakartaⁱ - 1) a local business can take out a loan in USD at low rates, 2) then exchange the dollars into the local currency at a favorable exchange rate (strong USD), 3) allowing this business to extend credit to individuals or invest in capital.¹ This example is known as a 'carry trade' and shows that a change in one variable can lead to many changes that reach far across the globe.

Nearly all variables we hear about today fall into a category in one economic equation of GDP²: $Y = C + G + I + NX$,ⁱⁱ where Y is GDP, C is consumer spending, G is government spending, I is

Monetary Policy Transmission

Figure 1



Source: Kuttner and Mosser, 2002

¹ This example would not work if the local currency is experiencing hyper-inflation.

² Also known as Aggregate Demand.

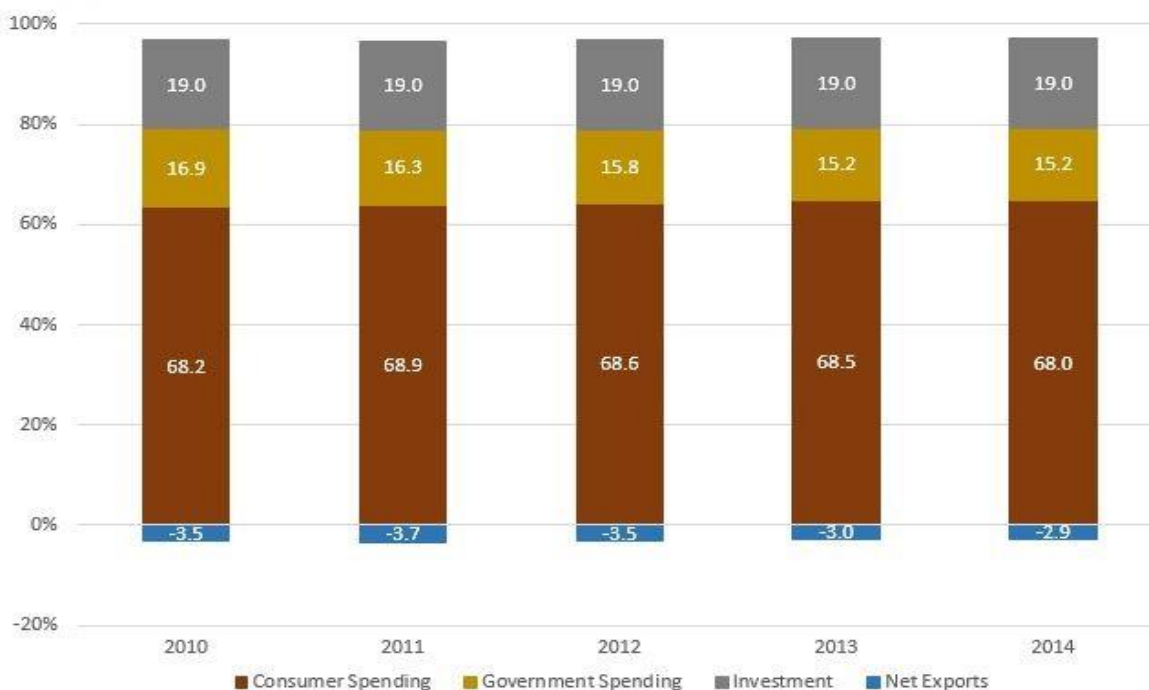
investment, and NX is net exports, i.e. exports – imports. Assuming a country's³ main economic goal is to increase GDP, as is most democratic nations, this equation can be helpful in understanding how different factors increase (decrease) GDP or the other variables. Moreover, every economy has an independent and unique equation. For example: 70% of US GDP is derived from consumer spending (C), whereas China relies on government spending (G) and net exports (NX). (Figures 2 & 3)

The flow chart in figure 1ⁱⁱⁱ above shows how monetary policy can effect GDP through these certain variables. During the recession in 2008-2009 the Federal Reserve set its target fed funds rate⁴ to 0%, meaning the FOMC⁵ (top box) buys and sells short term securities to 1) decrease bank reserves. This action 2) decreases the fed funds rate to their target (0%) and 3) increases the monetary base. When reserves are decreased and the fed funds rate is low, this 4) increases the loan supply. More loans can increase consumer spending (C) and domestic investment (I); therefore, increasing GDP. A low fed funds rates also influences the 5) market interest rates, causing them to drop as well. Low market rates can influence new mortgages, refinancing, car loans, margin loans, etc., all of which 6) inflate asset prices like homes & stocks. High asset prices can make a consumer feel financially healthy, prompting them to spend on luxury items – like vacations or dining – again increasing consumer spending (C). While it seems everything benefits GDP, the opposite effect occurs when involving our international participants. A low interest rate most often corresponds to a 7) low inflation rate⁶, making investment into the US from another currency unattractive, decreasing the investment variable (I). A larger monetary base can 8) devalue the exchange rate^{iv}, making goods more attractive to international buyers, increasing net exports (NX).

As demonstrated, one policy can influence an entire sphere of economic events, making them very complex systems. In the U.S., a debate is taking place among many market participants about

Figure 2
Source: World Bank, Doxa Research

U.S. Variables as % of GDP



³ Country, Region, State, & Municipality all are relevant to the stated equation.

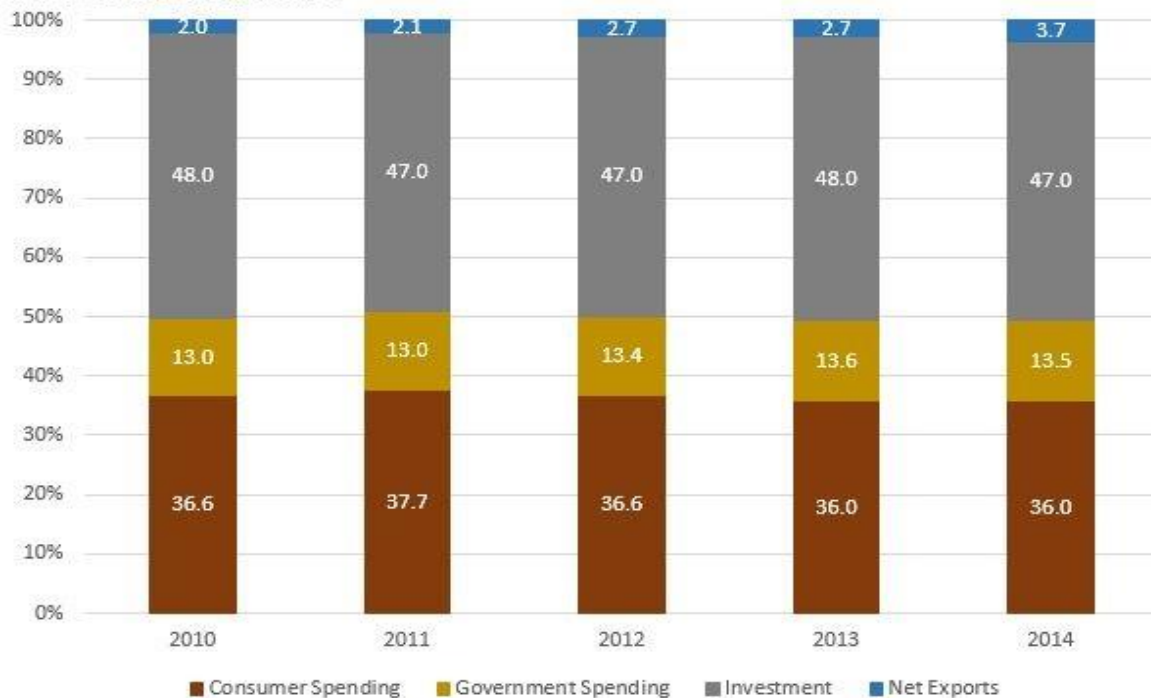
⁴ Also known as the 'overnight rate', this rate is what the banks are charged to keep money overnight at the Fed.

⁵ Federal Open Market Committee.

⁶ Citing the Fischer Effect.

Figure 3

Source: World Bank, Doxa Research

China Variables as % of GDP

whether the Federal Reserve should ‘raise’ the overnight rate⁷ (which we believe occurs December, 2015). Figure 1 lightly demonstrated how an economy would act when short term rates are set very low (GDP growth), inferring the opposite would happen when short term rates begin an upward trajectory (GDP would contract). Recognizing that monetary stimulus can’t exist forever⁸, central banks, like the Federal Reserve, have to craft a normalization plan that causes the least amount of drag on the economy – in other words – have a plan that doesn’t adversely affect C, G, I, or NX enough to turn Y (GDP) negative. As mentioned, each economy has a different equation, i.e. the weight that each variable effects GDP. Each economy also has different multipliers on those variables, meaning a stimulus in one variable has more of an effect than the same stimulus in another⁹. (Our current view on the [US Economy](#) and [Wages & Inflation](#))

Globalization & the Emerging Markets

While it seems straightforward – take the path that damages the economic equation the least – globalization of the world today makes fiscal and monetary policy much more influential. Since the U.S. dollar is used in more than 90% of all foreign exchange transactions and over 30% of global trade transactions^v, even an expectation of higher interest rates can lead to a big appreciation. As the expectation of U.S. normalization took hold in 2015, the dollar appreciated more than 10%¹⁰ compared to a basket of currencies - which influenced many nations to devalue their own currency or re-adjust their peg¹¹. This made goods & services outside of the US more attractive (cheaper) and allowed US companies to be the acquirers instead of the acquired. Over the short term, a stronger

⁷ The overnight rate is the interest rate that large banks use to borrow and lend from one another in the overnight market.

⁸ The longer rates stay low - the more excess risk is put into the financial system - creating a large asset bubble.

⁹ This is because of things like MPC, the economic system, and fiscal policy.

¹⁰ As of Dec. 2, 2015

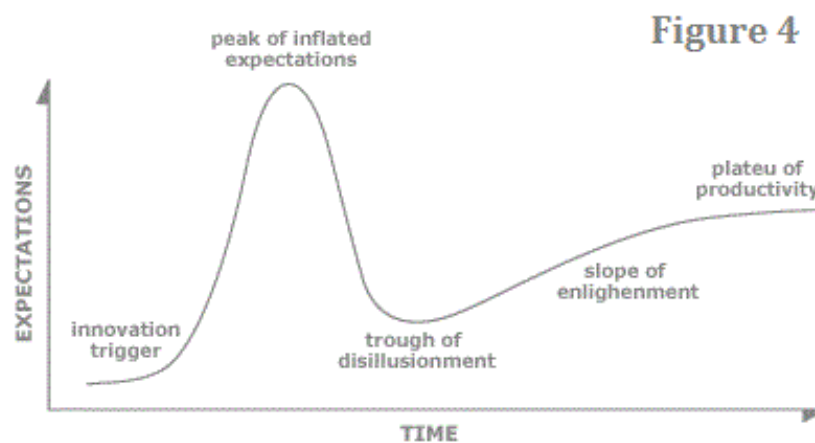
¹¹ Many nations peg their currency to the USD, making their currency moves comparable to the moves of the USD.

currency doesn't necessarily have a negative effect on GDP (consumer purchasing power¹² increases), but it can have a negative effect on corporate earnings. A strong dollar makes it harder for US multinational companies to compete with their international counterparts (*Doxa's 2016 US Outlook outlines the forecasted headwinds and tailwinds going forward, releasing Jan. 2016*).

As US corporations battle a stronger dollar, international corporations welcome it. International companies, especially ones in the emerging markets, should flourish by selling their cheaper goods to countries with an increased purchasing power (strong dollar). Yet, emerging markets like Mexico, China, and Brazil have struggled even as their exports got a lot cheaper (relatively) over 2015. We believe these markets – and all markets – are experiencing a large lag in economic activity because of a 'normalizing' environment across the globe. As we outlined in "[The New Normal](#)", we shouldn't expect to see a world economy that mirrors the economy of 1999, but instead a world where emerging and developed markets are both more mature. Sustained GDP growth for the Eurozone or U.S. looks 'normal' at 2%-3% vs. 3%-5%. 'Normal' GDP for the BRIC's¹³ looks more like 4%-7% instead of 10%-12%. To us, these changes do not show weak economies, but economies that are maturing over a very long cycle¹⁴. *For repeat readers, we are not referring to the oft-cited 'normalization' stage of the economic cycle (Recession – Recovery – Normalization – Expansion), but rather the normalization of the much larger cycle of global trade.*

The Gartner Hype Cycle^{15vi} is shown in Figure 4, but we believe it represents the long term cycle of a region's GDP as well as it does the cycle of technological innovation. For emerging markets, the true globalization of trade in the 80's¹⁶ was a 'trigger' that began a mass amount of capital inflows¹⁷. These inflows continued for nearly 20 years and were used to build out seaports, airports, manufacturing plants, highway infrastructure, telecom infrastructure, etc. India became a technology centerpiece, China became the maker of all things, and Brazil exported raw materials to build the development. All of this capital created a middle class and brought 'new' wealth upon many families. However, the emerging markets new found success did depend on demand for their exports by the developed markets, which was unwavering through the 90's and early 2000's¹⁸. Multinational corporations were reaping the benefits of cheap labor and input costs, while also seeing productivity rise from continued technological innovation. Over the 20 years (1987-2007) people came to believe that demand (Y) from the developed markets and cheap supply (NX) from the emerging markets would never end, an expectation that proved to be very inflated.

The emerging markets saw their 'Golden Age' end during 2008, when the global recession curbed demand (Y) in the developed world. The



Source: Gartner Technology Research

¹² An increase in purchasing power means that more goods/services can be bought with the same unit of currency.

¹³ An acronym for Brazil, Russia, India, & China.

¹⁴ We assume that each leg of a country's cycle can take at least a decade or more.

¹⁵ The hype cycle was created to show how a technology or application will evolve over time.

¹⁶ True Globalization defined by the Trade Agreements Act of 1979 and the US's first FTA in 1985.

¹⁷ Also known as FDI, or foreign direct investment.

¹⁸ While recessions of '91 and '00 did shrink demand, global demand remained steady overall.

developed market bankers had to pull back their capital¹⁹ in the recessionary environment, leaving the emerging markets with unfinished projects, bankrupt businesses, and a load of goods that no one was willing to buy. When governments looked at their economic equation ($Y=C+G+I+NX$), they saw the two most influential variables (I, NX) collapse in a year's time. This forced governments to focus policies on consumer & government spending – which we have seen since 2010²⁰. EM debt has expanded^{21vii} to fund domestic projects and fiscal stimuli has tried to spur consumers. We aren't dismissing these efforts as failures – in fact many governments have succeeded in implementing reforms and focusing their economies off of exports and on to domestic consumption. For many emerging markets, the 'consumer' population just isn't large enough to produce the 10% GDP growth much of the world was accustomed to, producing an 'economic slow-down' that has plagued the EM financial markets over the last 7 years²².

As developed markets continue normal economic cycles²³ along the plateau of productivity, we believe the emerging markets may have hit the bottom of the trough of disillusion. Most investors have written EM's off as it seems 'nothing can get better', but we see certain markets as 'it doesn't look worse'. Overall, some emerging economies have gotten healthier over the last 7 years by reducing the concentration of GDP growth tied to one variable. Big economic strides have been made domestically involving law, land, & corruption that will continue to reap benefits domestically (C) as exports (NX) and investments (I) are reinvigorated.

We believe many investors will look back on 2015 as a 'gap period' (a transition between stages) – or the lag between economic cause & effect (in this case a falling local currency + demand recovery). The 'gap period' may continue into 2016 or even 2017, providing a good opportunity to evaluate whether certain economies can take full advantage of the economic tailwinds going forward. We do not expect to see 10% GDP growth in countries like China & Mexico anymore, nor would we want to. Sustained, well-rounded growth from each C, G, I, & NX is much more favorable to a long term investment.

Chase Lee

Director of Research

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¹⁹ Referring to the allocators of capital, i.e. funds, banks, & governments.

²⁰ Mainly in the form of structural reforms like China's seven pillars (reduce corruption, define a law of land, and open the domestic economy to foreign investment) and Mexico's energy incentives to attract foreign investors.

²¹ Corporate debt issuance has quadrupled over the last decade.

²² Broad EM indexes (MSCI, FTSE) have lost ~4% over the past 5 years.

²³ Shorter term cycles that we identify as recession, recovery, normalization, & expansion.

ⁱ Bruno, Valentina & Song Shin, Hyun, “Global dollar credit and carry trades: a firm-level analysis”, <https://www.bis.org/publ/work510.pdf>, August 2015

ⁱⁱ The Components of GDP, www.bea.gov

ⁱⁱⁱ Kuttner, Kenneth & Mosser, Patricia, “The Monetary Transmission Mechanism: Some Answers & Further Questions”, <http://www.newyorkfed.org/research/epr/02v08n1/0205kutt.pdf>, May 2002

^{iv} Astute readers might also say that a lower exchange rate should also increase foreign direct investment, while a lower interest rate deters it. Good catch. In the markets, a lower interest rate actually deters foreign money from investing in debt instruments and forces them to look elsewhere for a higher return. Elsewhere could be within the same country but in a different asset class. We saw this take place post-2008, as foreign money poured into US real estate and businesses

^v Auboin, Marc, “Use of Currencies in International Trade” – WTO Economic Research, https://www.wto.org/english/res_e/reser_e/ersd201210_e.pdf, May 2012

^{vi} Gartner Technological Research, <http://www.gartner.com/technology/research/methodologies/hype-cycle.jsp>

^{vii} IMF Survey, ‘Rise in EM Debt Driven by Global Factors’, <http://www.imf.org/external/pubs/ft/survey/so/2015/POL092915B.htm> Sept. 2015

IMPORTANT INFORMATION

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No model or group of models can offer a precise estimate of future returns available from capital markets. We remain cautious that rational analytical techniques cannot predict extremes in financial behavior, such as periods of financial euphoria or investor panic. Our models rest on the assumptions of normal and rational financial behavior. Forecasting models are inherently uncertain, subject to change at any time based on a variety of factors and can be inaccurate. Doxa Capital believes that the utility of this information is highest in evaluating the relative relationships of various components of a globally diversified portfolio. As such, the models may offer insights into the prudence of over or under weighting those components from time to time or under periods of extreme dislocation. The models are explicitly not intended as market timing signals.

DCP makes no representation, and it should not be assumed, that past investment performance is an indication of future results. Moreover, wherever there is the potential for profit there is also the possibility of loss. Certain of DCP's strategies involve advanced investments that can be illiquid and are subject to a substantial risk of loss and are not suitable for many investors. Options are not for everyone. Before engaging in the purchasing or writing of options, investors should understand the nature and extent of their rights and obligations and be aware of the risks involved, including the risks pertaining to the business and financial condition of the issuer and the underlying stock. A secondary market may not exist for these securities. Where an investment is denominated in a currency other than the investor's currency, changes in rates of exchange may have an adverse effect on the value, price of, or income derived from the investment.

ECONOMIC INDICATORS AND FINANCIAL DEFINITIONS

Inflation – The Consumer Price Index (CPI) NSA (non-seasonally adjusted) measures changes in the price level of a market basket of consumer goods and services purchased by households. This indicator value represents the trailing year over year % change in the CPI index as of last month-end.

GDP / Economic Expansion – GDP (Gross Domestic Product) measures the total market value of a nation's output of goods and services during a specific time period. It is usually measured on a quarterly basis. Current GDP is based on the current prices of the period being measured. Nominal GDP growth refers to GDP growth in nominal prices (unadjusted for price changes). Real GDP growth refers to GDP growth adjusted for price changes. Calculating Real GDP growth allows economists to determine if production increased or decreased, regardless of changes in the purchasing power of the currency.

Recession - A period of temporary economic decline during which trade and industrial activity are reduced, generally identified by a fall in GDP in two successive quarters.

Market Volatility (VIX) –CBOE VIX (Chicago Board Options Exchange Volatility Index) measures annualized implied volatility as conveyed by S&P 500 stock index option prices and is quoted in percentage points per annum. For instance, a VIX value of 15 represents an annualized implied volatility of 15% over the next 30 day period. The VIX measures implied volatility, which is a barometer of investor sentiment and market risk.

Aggregate Demand - In macroeconomics, aggregate demand (AD) or domestic final demand (DFD) is the total demand for final goods and services in an economy at a given time. It specifies the amounts of goods and services that will be purchased at all possible price levels.

Aggregate Supply - In economics, aggregate supply (AS) or domestic final supply (DFS) is the total supply of goods and services that firms in a national economy plan on selling during a specific time period. It is the total amount of goods and services that firms are willing and able to sell at a given price level in an economy.

Federal Open Market Committee (FOMC) - The branch of the Federal Reserve Board that determines the direction of monetary policy. The *FOMC* is composed of the board of governors from different Federal Reserve Banks around the country.

Monetary Stimulus - an attempt to use monetary or fiscal policy to stimulate the economy by lowering interest rates and/or quantitative easing.

Policy Normalization - Specifically, monetary *policy normalization* refers to steps to raise the federal funds rate and other short-term interest rates to more normal levels and to reduce the size of the Federal Reserve's securities holdings and to return them mostly to Treasury securities, so as to promote the Federal Reserve's statutory mandate set by Congress.

Developed Economy – countries with high gross domestic product (GDP) per capita and industrialization; countries in which the tertiary and quaternary sectors of industry dominate would thus be described as developed.

Emerging Economies - progressing toward becoming more advanced, usually by means of rapid growth and industrialization. These countries experience an expanding role both in the world economy and on the political frontier.

Productivity - the effectiveness of productive effort, especially in industry, as measured in terms of the rate of output per unit of input.

Overnight Rate / Discount Rate - the interest rate that large banks use to borrow and lend from one another in the overnight market.

Monetary Base – a part of the money supply which is highly liquid, including notes, coins, and commercial bank deposits.

Monetary Policy - the process by which the monetary authority of a country controls the supply of money, often targeting an inflation rate or interest rate to ensure price stability and general trust in the currency.

Carry Trade - A strategy in which an investor sells a certain currency with a relatively low interest rate and uses the funds to purchase a different currency yielding a higher interest rate. A trader using this strategy attempts to capture the difference between the rates, which can often be substantial, depending on the amount of leverage used.

Loan Supply – the amount of outstanding loans, commercial or personal, that are in effect between an entity(s) and a bank(s).

Margin Loan - A margin loan lets you borrow money to invest and uses your shares or managed funds as security.

Fischer Effect - an economic hypothesis stating that the real interest rate is equal to the nominal rate minus the expected rate of inflation.

Economic Multiplier – an effect that refers to the increase in final income arising from any new injection of spending.

Currency Peg – an exchange regime where a currency's value is fixed against either the value of another single currency, to a basket of other currencies, or to another measure of value.

Foreign Direct Investment (FDI) - a controlling ownership in a business enterprise in one country by an entity based in another country.

Purchasing Power - the value of a currency expressed in terms of the amount of goods or services that one unit of money can buy. Purchasing power is important because, all else being equal, inflation decreases the amount of goods or services you would be able to purchase.