

JIGSAW TALENT MANAGEMENT

MONTHLY MARKET REPORT

FEBRUARY 2022



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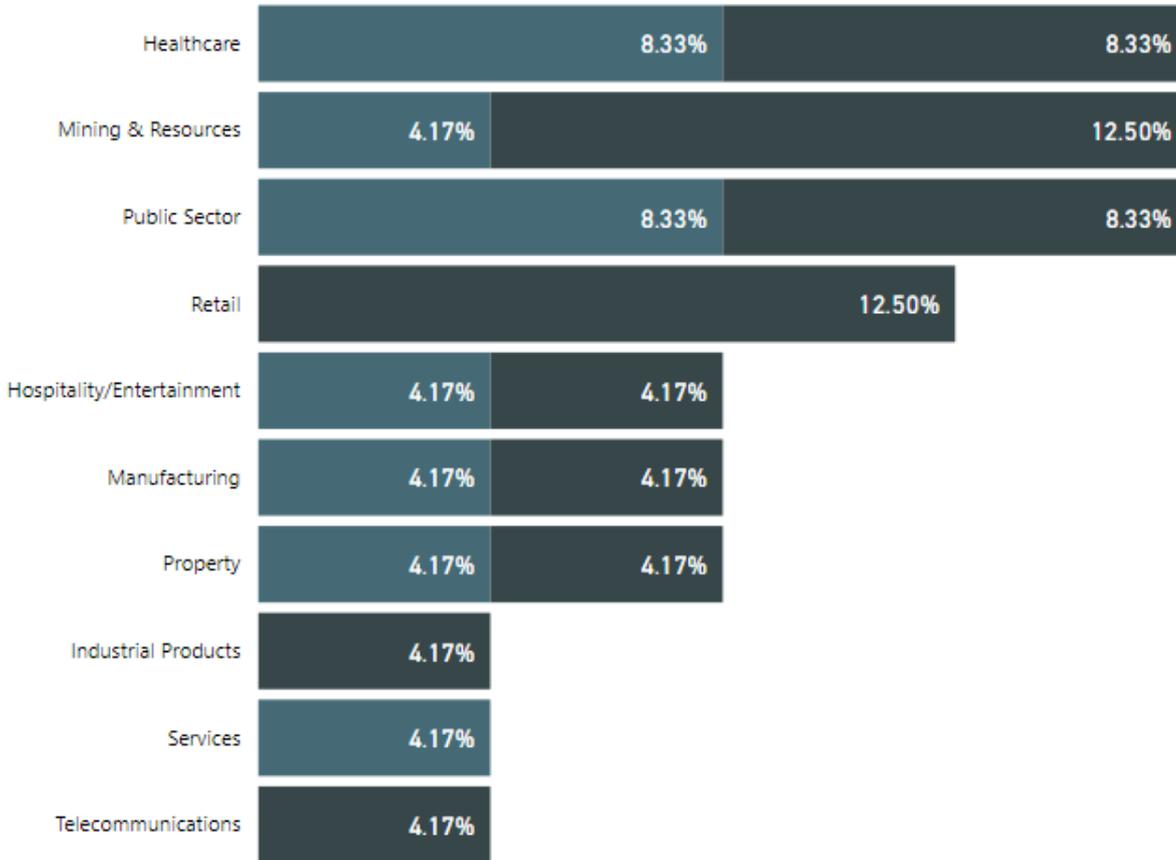
CURRENT MARKET DEMAND

FEBRUARY 2022

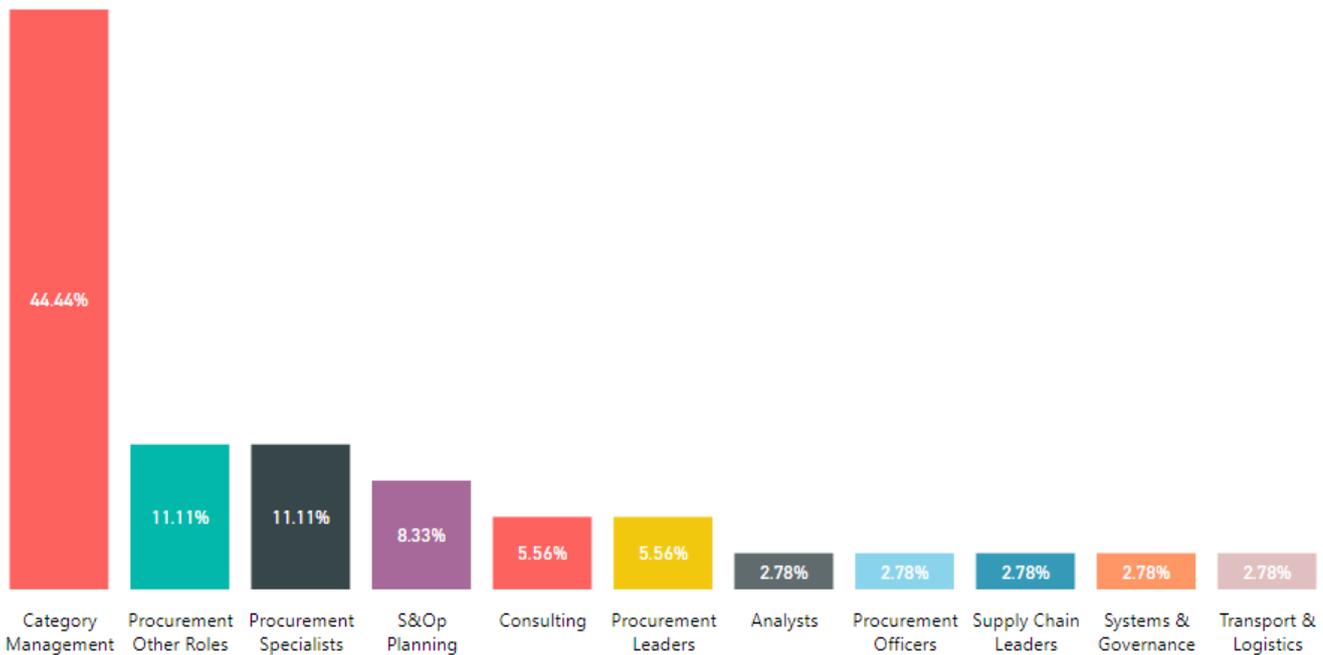


Live Roles by Industry

Type ● Contract ● Permanent



Live Roles by Job Category





Jigsaw's February report focuses on Inflation, which seems to be the BIG issue across the media right now. Inflation has been touched on multiple times in Jigsaw's reports and we have correctly predicted actions by governments and central banks would create the perfect conditions for the phenomenon to raise its ugly head. Our most detailed economic review can be found in our [September 21 report](#), where we broke down the trends of the US economy from 1970 to 2020.

The current economic conditions will be an immense challenge for people who are keen to secure wealth for retirement. The past 40 years have seen a decrease in interest rates, which meant a traditional 60/40 investment portfolio delivered a strong mix of income and capital gains. As interest rates continued to be reduced over 4 decades the principal value of bonds (debt markets) elevated to the bubble we have today. Low interest rates also ensured equities, especially of growth stocks soared to similar levels, as well as any other asset class that is rate sensitive. As we move into the next decade Jigsaw predict that interest rates, at least relative to the cost of living, will stay suppressed. This means, to get any type of return, actual research will be required by investors to select individual companies that can outperform the market conditions. Typically, pension funds target 7% returns. 7% is a tall order to achieve when interest rates are under 1% and inflation is surging at over 10%. The derivatives market is already heavily leveraged to obtain returns. As market volatility increases, this practice will become ever riskier.

Jigsaw are predicting investment capital will shift from passive investing like ETF's and fixed income to value equities and precious metals. As the USD comes under more pressure re global trade (China, Africa, Russia) and new gold backed digital coins (China and Russia) the USD will slowly lose its status as reserve currency. As the USD gets weaker relative to gold, silver, and other leading economic commodities, foreign investment capital will leave the NASDAQ and other US equities as well as the US treasury market. A nations currency has three prime levers that give it value against other currencies, deep capital markets to lure foreign investment, international trade, and interest rates. The US was unique in that it also had foreign debt locking in the commitment to use the USD for oil through the swift system. If we review these elements, we can see that the US does not have a strong export market, in fact the US biggest export is USD, which it has purposely suppressed by running a trade deficit to control inflation and increase consumption of exported production. So, the US does not have any exports to save it. Then there are the capital markets. The US has the deepest capital markets in the world, with a huge supply of government debt, equities, and the global reserve currency. Yet, Russia, China and other countries are selling off their holdings of US capital such as bonds and instead holding gold. When inflation is running wild across global markets and real interest rates are negative, it makes more sense to hold a real store of tangible value like gold than hold a non-tangible debt asset that is losing value in principle and yielding a negative return. It makes no sense to pay a country to take your money and invest it poorly, and this is essentially what all bond holders are doing right now. Then there is the swift system of global energy (oil) trading. This has been the US's biggest weapon over the past 45 years enabling them to police other nations under the guise of global stability. No doubt, the US does offer some stability (25%), yet it is also responsible for unrest (75%). In recent times, many countries are moving around the USD to trade, using gold or other currencies to do so. Africa, the 5th largest producer of oil has recently announced it will trade with Russia and China outside of the US system. And finally, there are interest rates, which the US simply cannot increase enough to curb the inflation it has created.

January experienced the biggest sell off in equities on record (start of year trading) as central banks stood by hawkish policies to curb asset purchases and raise interest rates by Q2. The US posted GDP growth of 6.9% for Q4 2021 which was above the forecasted 5.5%. This figure gave strong support to the FED's ceasing of open market operations putting huge pressure on growth stocks. If we look deeper into the figures, we can see that this GDP growth is a false flag and is in the negative territory according to shadow stats. The reality is a combination of inventory replenishment and underrepresented inflation figures indicating a picture of recovery, when in fact nothing could be further from the truth. Real inflation in the US as measured in the 80's is 15%, the highest it has been since 1947 when Harry Truman was President. The CPI con job enables governments to inflate GDP numbers, the inflation discount to real growth is minimised and social security adjustments are incorrectly adjusted to the real cost of living, allowing the governments to pay out less to its citizens. In the 80's, CPI house prices were included. Now, rent inflation is calculated by asking homeowners annually if they were to theoretically rent out their house, what would they charge.

So, it's obvious that official inflation numbers are distorted, not really representing the cost of living for a country's citizen. The basket of goods that make up the number seems to be minimised and manipulated to better represent the governments performance of managing the economy, whilst also reducing its fiscal commitments to both debt and civil obligations. The US economy and many others including Europe and Australia are being exposed to dramatic inflation which is impacting construction and manufacturing sectors. Tightening monetary policy in such conditions could be reckless.

The assumption is inflation is caused by too much demand and free cashflow chasing too few goods, pushing up prices on our cost of living. Although this is logical and certainly can be a cause for inflation, there are several economic factors that can create inflation. The label inflation should also be probed when used to describe economic trends. Many economists still cannot agree on the absolute definition of inflation. The real issue of disagreement is whether inflation means an increase of the monetary supply or an increase in the money supply coupled with velocity of exchange. In the real economy the money/credit supply is created by the retail and investment banks and not by the central banks, like the RBA and the Federal Reserve. When market liquidity or interest rates require manipulation then that is under the influence of the central bank, however the money creation generated by the central banks is essentially an asset swap, with government debt (pristine collateral would be T Bills) being the preferred asset of exchange. Although these transactions between the central banks and the primary lender banks dictate the cost of money and how much banks can lend in the open market, they do not directly create more money in the economy. They do however indirectly influence the money supply in the economy by altering the value of money via the interest rate and increasing asset prices for bonds, real estate, and equities. If assets increase in value, they generate more money in the real economy as more currency is issued in credit markets to obtain these assets and more profits are realised when assets are sold. The higher the value of assets the higher the value of debt in a system. Money creation is no longer in a ratio with production but in a ratio with debt and systematic risk. The risk being these assets are grossly overvalued and a collapse in asset prices causes a rapid collapse in liquidity.

What does the Central Bank do?

When we think of money creation and struggling economies, we can often get drawn into the jargon of fiscal narratives that relate to central bank operations such as REPO, Reverse REPO and QE etc. For reference, let's breakdown what these terminologies mean.

Reserve Account at FED - Money that must be kept at the central bank in the reserve account to meet fractional bank lending liquidity requirements. Banks can only spend surplus reserves on high quality assets like T-Bills. Banks need to hold a certain level of reserve funds to meet liabilities in case of sudden withdrawals. Essentially it is a tail wind for the real economies liquidity – how much credit the banking sector can create as a ratio of reserve. If the level of reserves is lowered it enables banks to make more loans to customers and is inflationary. If the level of reserves is increased, the amount of loans banks can make into the real economy are decreased and so it is deflationary.

Open Market Operations – The FED buys and sells government bonds to control the money supply and interest rates. The counter party to these transactions is the Primary banks. To increase the money supply or bank reserves the FED will buy bonds and to reduce the money supply the FED will sell bonds. If inflation too high, the FED will sell bonds to banks in turn decreasing the money supply and increase rates. Likewise, if deflation is a threat to the system the FED will buy bonds increasing the central bank reserves and in turn reducing rates. Open market operations are not a targeted FED operation, the markets are open and flexible to a broad range of bond dealers and money market funds. Open market operations can be temporary or Permanent.

Quantitative Easing – The difference in QE and OMO is the size and scale of the operations and the target to be achieved. OMO is mainly to manipulate interest rates. QE is mostly focussing on liquidity. In QE, the FED purchases longer term securities from the open market to increase the money supply and encourage the creation of credit in turn expanding the FED balance sheet. In addition, it lowers the rate of interest on savings and loans.

REPO – A two-way transaction with cash on one side of the transaction and a bond/security on the other. One party sells a bond to another institution and agrees to purchase back the asset for a higher price at a certain date. This is typically short term such as overnight but can be for up to 65 days. The practice allows for banks and

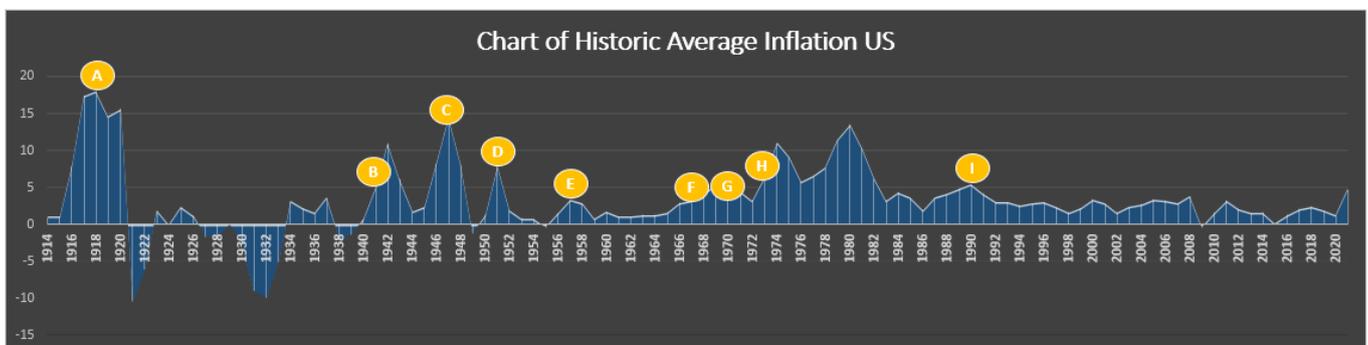


fiscal institutions who own lots of collateral (bonds) to borrow cash at a cheap rate. Vice versa, it allows institutions with a lot of cash (money market funds) to earn a small return on cash with little risk as the collateral used is of high quality – T-Bills. The REPO markets core function is to allow inter-bank lending using collateral. It is used for short term lending to mitigate fluctuations in liquidity (bank reserves) to essentially raise short term capital and is not an operation to manipulate balance sheet expansion/contraction. The agreed contract to re-purchase at a higher rate allows for a broader asset class to be used than outright purchases.

Reverse REPO – Helps provide a floor under overnight interest rates by acting as an alternative investment for money market investors when rates fall below the interest on reserve balances. The function of reverse repo decreases bank reserves, so it is deflationary as it reduces the banking sector’s ability to create credit. By the FED selling back bonds (FED borrows money from the banking sector) it pushes up interest rates. It is essentially a tool to prevent interest rates turning negative.

The Cause of Inflation

In the below chart Jigsaw has presented US inflation figures (average) from 1914 to date to better understand the economic triggers for inflation. Each inflation spike is indicated with a letter of the alphabet and a detailed reference is highlighted below re each spike.



A - Inflation surged in 1915 due to WW1. The cost of WW1 to the US alone was \$32 billion or 52% of US GDP. The war was funded in the US by taxes (22%), Money printing (devaluation of 20%) and Civilian (Liberty) bonds (58%).

B - Inflation surged in 1941 due to WW2. Capped yields on bonds incentivised the public to fund the war in addition to increased taxation from WW1. Money supply increased 149% from 1939 - 1948 on a backdrop of pivoted production to the war effort creating supply shocks across consumables and gold importation from Europe to pay for war materials. Not even wage and price controls could prevent the inflationary surge.

C - Inflation hit 20% in 1947 as the post war recovery removed price controls. Pent up demand was met with low interest rates. High unemployment resulted as industries attempted to recover post war whilst inflation ravaged the economy. Like the present day, the US Government placed debt devaluation as a priority over rising cost of living.

D - Inflation persisted as production costs increased as the post war economy tried to recover. Increased demand for agriculture and production machinery was a driving force. In 1951 the privately held money supply in the US was \$11 billion, up from \$7.1 billion in 1950. This was caused by increased credit pumped into the marketplace by retail banks across defence, agriculture, and manufacturing. A tail wind for the monetary expansion was also net inflows of gold from Europe enabling increased elasticity in the credit markets.

E - Stagflation took hold as car sales, construction and capital goods sales contracted resulting in over 2 million people (US) out of work. As the bulk of these were claiming unemployment insurance and civilian

deposits were high on the back of prior economic surges. This resulted in inflation rising 2.7% in a 12-month period.

F - Inflation in the 60's was caused by US involvement in the Vietnam war, Government expenditure in the Great Society Programme (to combat poverty and racism) and low unemployment increasing the cost of labour in turn raising the cost of goods.

G - In addition to the factors already mentioned in (F), President Nixon took the US off the gold standard to prevent the US defaulting on debt obligations and to further promote Keynesian economic policy (Social Security). At this point in time, the US dollar was backed by nothing.

H - In 1973 the world experienced an oil shock with the price of oil rising 4 X as the Middle East embargoed the supply. This led to the symbiotic relationship between oil and the USD as the US exchanged USD for oil, promoting protection of Middle East interests for the privilege.

I - Energy prices were skyrocketing with oil rising 300% on the back of the Iranian revolution

There are two events in the chart above that enabled the US government (and others) to hide inflation aside from exporting inflation to emerging markets. They are the removal of gold as a peg to the USD and changing how the CPI is recorded in 1980. These events are a reason for the peaks on inflation being subdued from 1980 onwards.

Likely the more accurate health of an economy is in the non-farm payroll figures. Non-farm payroll is the measure of employment in an economy that excludes farm labour, charities, and some government labour. It is a great measure of economic health as the private sector collects the info every month on payroll data and reports it to the government. As an example, in the current US economy the FED and Biden government have been making a big deal of a 6.9% GDP figure for the previous QTR which is based in panic buying across the industry sector to re stock inventory before prices rise further. If we compare the GDP data with non-farm payroll numbers, the economy does not look rosy at all. Shadow stats position US unemployment at 24.5% with nonfarm payroll numbers drastically underperforming at the end of December 21 forecast by 200k jobs.

How does Monetary Policy Impact the Supply Chain and inflation?

For the past 24 months, Jigsaw have put together a series of articles covering procurement, supply chain, logistics and aspects of the economy. We have gone into detail re inflation, supply shocks, US economic cycles and explored a wide range of topics we felt our subscribers would find of interest.

For our February report we thought it may be of interest to explore how the influence of central banks and governments impact business. If we take a simple supply chain (so simple that many aspects are not included) that only accounts for raw materials, labour, production, and end consumers we can better understand how government and central bank policies impact the real economy, which can give us a greater understanding of the real challenges supply chain leaders and boards are facing at this time.

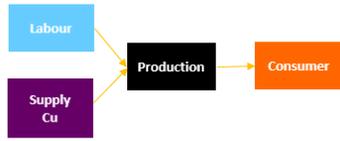
In the example below we have a manufacturing company (Company X) that produces SKUs mostly made of copper. These SKUs are unrealistically produced in sync with contracts to deliver set volume which optimises materials ordered, production and sales volumes. The finished goods are sold at retail.

In our artificial world of commerce, the company has multiple contracts with various retailers and each contract is the same for simplicity of explanation. The basics of each contract states that Company X will produce 50 SKUs (units) to meet consumer demand, which requires supply contracts for 100lbs of Cu (Copper) every two weeks and each operation appoints a full-time head count of 10 FTEs (per supply and deliver contract) to produce the required 50 units. Each unit requires two FTEs re labour hours and 2lbs of copper and each SKU takes 1 day to produce to completion. As the business has hundreds of these contracts with retailers throughout its operation, its margin is small at 10% cost plus. The business has not invested in derivatives to hedge fluctuating market conditions of copper/energy and the operations has run for the past 5 years without hiccup.

This means for the past 5 years the employment head count per contract; supply volumes and margin have stayed the same and in line with the below operational costs.



Company X				Commodity	Labour	Currency											
Supply		Copper 11b	Employed			\$											
Supply		100	10														
Cost of Supply labour p/d			1			\$ 1.00											
Cost of Copper per pound		1				\$ 1.00											
Business Margin (cost +)		10%	10%														
		Copper per SKU in lbs	Days to Produce	Labour Capacity per SKU	Cost to Produce	Margin	Retail Price										
Inputs per SKU		1	2lbs	1 day	2 employees												
Cost per SKU		1	\$ 2.00		\$ 2.00	\$ 4.00	\$ 0.40	\$ 4.40									
Daily Production		5	\$ 10.00	1	\$ 10.00	\$ 20.00	\$ 2.00	\$ 22.00									
Weekly Production		25	\$ 50.00	5	\$ 50.00	\$ 100.00	\$ 10.00	\$ 110.00	Material Supply (lbs)	Labour Supply	Units	Market Demand	Revenue \$	Margin \$	Production Time (Days)	Impact (Economic)	Impact (Economic)
Consumer Demand		50	\$ 100.00	10	\$ 100.00	\$ 200.00	\$ 20.00	\$ 220.00	100	10	50	50	\$ 220.00	\$ 20.00	10	Good	
Problem A		IM	LIR	Labour Shortage				100	8	50	50	\$ 220.00	\$ 20.00	12.5	Supply Shock		
		LS	IN	Wage Increase (\$1.25)				100	10	50	50	\$ 247.50	\$ 22.50	10	Inflation		Labour Shortage
Problem B		D	LIR	Material Shortage				80	10	40	50	\$ 176.00	-\$ 4.00	8	Supply Shock		Operating Loss (2.2%)
			IN	Increase Margin				80	10	40	50	\$ 193.60	\$ 13.60	8	Supply Shock		Inflation (10%)
		D	HU	Reduce Labour				80	8	40	50	\$ 193.60	\$ 33.60	10	Unemployment (20%)		Supply Shock
Problem C		HU	HIR	Demand Shock				100	10	50	30	\$ 132.00	-\$68.00	6	Operating Loss (51.5%)		Working Capital Costs
		D	HU	Reduce Materials & Labour				60	4	30	30	\$ 132.00	\$ 12.00	15	Unemployment (60%)		Long Lead Time
Problem D		C19	IN	Material Inflation				100	10	50	50	\$ 231.00	\$ 21.00	10	Inflation (5%)		
		C19	D	Reduced Demand (20%)				100	10	50	40	\$ 184.80	-\$25.20	10	Operating Loss (12%)		Working Capital Costs
		HU	D	Reduce Materials & Labour				80	8	40	40	\$ 184.80	\$ 16.80	10	Unemployment (20%)		Inflation (5%)



As we stated, this is simple, academic, and unrealistic. What matters for this exercise is seeing how changes in the price of credit/money/debt, labour, Covid-19 policy, and immigration impact the operational inputs and outputs of our manufacturing enterprise (X). In the real world, a business would have to contend with more than just labour, supply, and production, we would have to factor in technology, freight, marketing teams, sales and many other operational impacts.

We will look at four problems (A, B, C and D) and explore typical solutions Company X may take to counter these unforeseen forces which impede operations. Again, in the real world there would be many more options and the ones selected here may not be optimum, but we do hope they demonstrate the real challenges facing many of today's operations.

Problem A - Company X experiences a 20% labour shortage (un-forecasted) across its operations because of low interest rates and Government Covid policy. The Covid policy causing the issue is a block on immigration and State borders being closed. Labour mobility has been frozen across both countries and states and low interest rates have allowed many other businesses in the country to leverage cheap capital to expand their own operations creating increased demand for talent putting pressure on wage inflation. This has caused many of Company X contracts for delivery within 10 working days to extend to 12.5 days (25% over deadline), creating a supply shock to consumers and dissatisfaction with the retailers who need the product on the shelves within the contracted timelines. If this 20% below optimum FTE capacity continues it will impact the entire operation across hundreds of contracts.

Solution - Company X has no option but to raise wages across the entire operation to both attract the talent in the market and satisfy the loyal labour force that was retained. This results in fulfilling the delivery times on the contract as production is back up to 100% but causes an issue re rising prices for both the retailer and the consumer. If Company X does not raise wages and simply negotiates a longer fulfilment time from 10 days to 12.5 days, the issue may get worse as more employees leave for better wages. The only option is to raise wages 25% and increase pricing 12.5% (0.55c per unit) to reflect the higher input costs in production.

Considerations - Low interest rates create inflation of asset classes. This in turn places inflationary forces on the economy as labour demand increases on the back of business investment. The tail wind for these forces is cheap credit offering businesses the opportunity to expand in markets that have no appetite for this expansion resulting in malinvestment. In addition, citizens in the economy (the workforce) can earn a living on inflated assets such as crypto, shares, rent or capital gains if salaries do not make employment attractive. This promotes wage inflation, especially when labour mobility is compromised. Rising asset prices can also be a catalyst for early retirement if inflation is managed.

Low interest rates and reliance on domestic labour creates inflation of both wages and consumption.

As businesses are typically efficient and use modern technology for scale, input costs are exposed to deflationary forces over time. If we assume production volumes that cater to a wide demographic (consumer staples) outstrip the supply of labour in a domestic marketplace because of the diversification of labour, geographies or intention, we can assume labour will most often hold greater value than the product being produced, or the materials utilized in many circumstances. As a result, the purchasing power of currency should increase as the cost of production decreases with wages always exceeding inflationary forces of a market. Prices rising is only a problem when wages are losing ground to rising prices and taxes to increase with this dynamic. When labour has value in an economy above and beyond the value of both capital and materials, rising prices do not impact consumption. If economic expansion and access to capital is in sync with available labour within a given market to both produce and consume the resources, malinvestment is less likely. This ensures that credit is used efficiently to service areas of the economy where true demand exists.

In the situation outlined, if low rates are a non-transient feature of the economy, Company X can borrow or raise new capital and invest in technologies that completely remove the labour force altogether, reducing operational volatility re fluctuating labour and move the risk to energy and maintenance inputs. Assuming inflation is surging across the manufacturing spectrum due to labour shortages indicating a 10 – 12% increase in CPI and interest rates stay low at close to 0.1% funds rate, there is upside in automation of the production process allowing for greater annual profits for Company X coupled with price deflation. This decision will increase the % unemployed and drive down wage inflation, in turn pushing down aggregate inflation across the economy at scale.

As this trend creates unemployment across the production eco system, consumer demand will drop as people without a job cannot earn a means to consume, creating further deflation of equities, consumer prices and contraction of the credit system over time. Absolute efficiency, operating cost management and profit generation cannot exist at the same time as absolute demand/consumption. Low interest rates, public sector administrative job creation and immigration can hide the asymmetric dynamic for a while, but eventually the real economy will attempt to find balance once again between productive employment, production, and consumption.

When the economy is globalised and surplus (or primary with surplus being a secondary consideration for local consumption) production is to be exported, rising wages, strong currency and increased price of goods is a problem. A globalised model that focuses more on exports than serving the consumption of its domestic citizens chooses to destroy the value of its currency, seek markets with the highest potential for consumption and drive supply chain decisions that promote deflation of production inputs from cradle to grave, including that of labour. What cannot be offshored or outsourced is suppressed via government policy such as immigration, taxes, and laws.

Problem B - Company X experiences a supply shock as raw materials (copper) hit record low inventory levels throughout the globe because of Covid-19 lockdowns hindering production, lack of capital investment across the mining complex coupled with sustained low interest rate environment supporting the issue and consumption is outstripping production. Low interest rates and inflationary pressure ensure commodity prices are elevated, as the cost of holding working capital is cheaper and tomorrow's pricing is unfavourable to present. If commodity demand increases yet supply is lacking investment because of capital flowing inefficiently into bonds, solar, wind and equities, then a deflationary crunch is a given. This crunch is happening with oil, gas, and uranium too. For Company X, supply is down 20% (un-forecasted) which is deflationary for the economy. Lack of supply will hinder production and development for many businesses, impacting sales and revenue. Yet market demand remains high on a backdrop of cheap debt.

For Company X the impacts mean that units produced are down 20% (50 SKU to 40 SKU) resulting in less revenues throughout the value chain coupled with over capacity of labour creating an operating loss of 2.2%.

Consumers and retailers are also not happy as SKU fulfilment has not met target.

Solution - Company X has two immediate solutions it can execute, but neither are favourable as they create other potential commercial consequences.

This first consideration is to increase margin on the SKU to ensure the carry of 20% labour over current production requirements can be sustained, retaining the workforce in preparation for supply to return to previous status of 100 lbs per fortnight. This revised pricing is inflationary with consumers being hit with a 10% increase on SKU with 20% of consumers having to source an alternative brand of product across the network. The Retail network may push back on this request causing a strain on B2B relations. If competition of Company X has



foreseen the copper shortage and invested outside of JIT operations, investing in storage and pre ordering a 12-month supply of material, then the Retail network could activate procurement to source new supply.

If the material shortage is sustained and the retail network will not accept a 10% inflation on the SKUs, then Company X could reduce the labour force by 20%. This will keep the SKU price at the contract terms of \$4.40 and for the time being optimise headcount to production, but the supply shock will remain. Should market conditions improve and material supply shortage abate, Company X is not guaranteed to source new resources quickly to deliver pre- supply shock volume. This then places Company X back in scenario A, as it attempts to pivot from material shortages (deflationary) to labour shortages (inflationary/deflationary depending on driver). Although a material shortage can, depending on contracts and markets be a force for inflation (short-term) or deflation (long-term), when labour is sacrificed to sustain unrealistic globalised prices based on off-shore supply and JIT supply chains, the result is high unemployment and economic deflation. This is especially true if the domestic skills have perished in the economy and no amount of wage increase can bridge the gap in skill shortages.

Considerations - Low interest rates could offer Company X a solution. Debt could be utilised to ensure labour is retained and positive cashflows could easily service these fiscal commitments whilst inflation is reasonable. Caution would need to be taken on the long-term trend of macro inflation or deflation. If materials shortages persist, the debt could be a poor investment. Sales could continue to decline with the risk of high unemployment across the board, further reducing consumption and sales. On a backdrop of economic deflation, product inflation could be an additional force impacting future sales. Although low interest rates coupled with inflation reduces the value of debt to be serviced, it can also impede operational cashflows. Typically, a supply shortage of mined materials is not easy to solve. Low investment in exploration of commercially viable material deposits that offer an attractive NPV and IRR throughout development cannot be easily turned round. If there is a shortage of copper, oil, manganese, graphite etc, the economic consequences for manufacturing are dire. As energy prices, land packages and labour costs increase, the energy to mine a given commodity increases greatly to the energy extracted through mining operations. This lowers NPV and IRR making commercially viable deposits harder to source. Add in the added cost of rising wages, a big government driver to hold onto power and inputs can rise to the point of industrial collapse.

When a business has/chooses to let go of experienced workers to accommodate SKU pricing, profits, or reduced production due to material constraints, the short-term gains can be balanced out by future commercial pain. The intermediate pain is experienced in geopolitical forces or unforeseen government policies. To source experienced labour to meet expanding demand is not easy when there is an abundance of available labour; almost impossible when markets tighten. The cost and risk associated with appointing, training, retaining and maximising outputs of new hires is grossly under considered by modern operations. Over the long term, replacing the entire work force with automation of production removes the volatility of material supply vs labour to efficiently produce to maximise profits. The long-term strategic issue for such transformation creates a demand shock re consumption as technology does not eat, drink, play, drive or fly. What is good for the individual company to gain competitive advantage is always a force for destruction in aggregate. If the world pivots to a digital age where technologies replace people to produce, think, create, and engage, the nature of us will perish and human value will not just be obliterated in commercial terms, it will eradicate the value of being.

Western economies have placed the development of engineers, scientists, and other types of labour to be the responsibility of emerging markets, leaving western domestic skills in short supply or non-existent. This dynamic worked when geopolitical tensions were smooth, and immigration was a simple strategy. Western leaders loved the opportunity to appoint and develop labour under conditions of cheap currency and zero governance to then import back to western countries via immigration, both suppressing the wage of domestic participants or replacing them entirely. In sync western economies favoured overseas students to gain a sugar hit of fresh capital, leveraging the premium dollars that could be charged for wealthy Asian countries to export their children to be educated in the west at the detriment to local students who had to pay export prices for education in their own countries. These highly qualified students then leave the western countries seeking employment in countries that have a highly developed industry complex. The developed country's chance at retaining such talent was historically standard of living, but if we look at GDP per capita across Germany, Australia, America, and the UK, it

seems this point of leverage is deteriorating rapidly. Globalisation has gutted western nations in both skills, production capability and standard of living.

Problem C - Company X experiences a demand shock. Increasing unemployment, the threat of rising interest rates and surging inflation has caused consumers to tighten their expenditure and redirect cashflow to savings or necessities. This has caused a 40% drop in sales equalling a 40% loss to the P&L of Company X; not including the emergency arrangements to store access materials in storage facilities as company X expands the balance sheet (current assets). This underperformance in sales was unforeseen.

Solution - Company X can see the deflationary trend and cannot see sales lifting in the short term (12 months) resulting in Company X taking drastic action by heavily reducing material inputs and labour across the operations by 40% to match revised consumer demand ongoing. These decisions add to the economic issues domestically as unemployment and supply deflation continue across markets. This drop in revenue and operations has also impacted company X's ability to raise new capital as the share price tanked with this news.

Considerations - Supply and demand shocks for businesses are a crippling force that are not easily corrected. If each end of the scale is not closely calibrated profits can be eroded easily. When central banks take part in open market operations which includes buying mortgage-backed securities, bonds, and equities to prop up markets and suppress rates artificially the real economy can lose track of economic signals that indicate where capital flows should go for a healthy economy. Price is often a key indicator for markets of under or over investment across the industry sectors. If supply is running short in each material class, then the price signals indicate to markets investment is needed to curb rising prices and the inverse is true for over investment (prices dropping). Same for assets. Over investment in assets results in rising prices and under investment results in falling prices. These signals are also indicated to the markets via equities if interest rates are not manipulated and are allowed to represent the real dynamics of an economy. If materials are in short supply, then revenues will fall in stocks that sell finished product with the materials utilised, impacting dividends and share price. This does not happen if interest rates are so low that these same stocks buy back their own shares to improve ROA and ROE giving false signals to the market (retail investors) that operations are doing well. The same is true for bonds and mortgages.

Operations vs market forces (supply/demand shocks) happen at different speeds. Market shocks do give warnings if trends are paid attention to but happen swiftly. Supply chain operations must be mindful not to counter to such shocks in a knee jerk reaction, taking time to assess the root cause of the shock, how prevailing the head winds will impact operations and take measured steps to counter. Business that attempts to counter such shocks as rapidly as they occur can encounter other operational issues as a result. Market demand can often bounce back rapidly as many shocks can happen because of emotion to the prediction of change rather than the change itself. Operations cannot re-build on sentiment. Once contracts are altered or expired, once staff are let go or capital is divested it can take many months even years to re-build and get back on track.

Problem D - Company X experiences material inflation as copper prices increase 10% as global demand for the material increases whilst global inventories come under strain due to Covid stagnating production output. The market has pivoted from supply shortages to increased spot price as operations in South America slowly come back online. Raw materials inputs for Company X have blown out from \$2 per SKU to \$2.20 per SKU. This has resulted in a 5% inflation for consumers. As these inflationary forces are understood across the value chain there is no B2B conflict between Company X and the retailers, however these outputs are predicted to cause contracted revenues as the inflation is widespread across the entire industry complex. Management understands that at a certain price point the cure for inflation is inflation itself.

Outcome & Solution - As predicted accurately by management the 5% SKU inflation has impacted market demand by 20% and it was decided to wait before taking any knee jerk reaction to operational changes just to ensure a new normal could be assessed. It is more likely than not that copper prices will stay elevated as global supply for the material cannot match global demand. There is a lack of high yielding copper mines in production at present, China demand for the material is at record levels and the EV industrial revolution is going to require a world where 10 times more copper will be required to build new locomotion and charging stations. New copper deposits of significance are scarce.



The outcome of this macro understanding has led Company X to reduce both materials and labour by 20% to match the new level of consumer demand. This has contributed to higher levels of unemployment which has helped to stagnate labour costs yet material costs will persist at 10% increases for the next 6 months and then rise further. This is stagflation. Rising consumer prices meets high unemployment and consumer contraction of demand. Company X will sustain its 5% rise in prices as the cost to now replace raw materials is 10% higher and it is the cost to replace inventory that will dictate future prices.

Company X long term plan is to transform the entire supply chain. Like many other supply chains in the economy there is a realisation that JIT does not work when geopolitics and economies turn volatile. In a market where rates are the tortoise and inflation are the hare, future demand is required in the present as tomorrow's markets will be pricier than today. Company X invests in land close to road, rail and ports leveraging a mix of current assets, debt, and equity deals, with the remainder of the capital raise being allocated to automation of production over the next 24 months. Procurement is upgraded from a simple contract and purchasing operation to a pro-active category model where each category vertical is embedded into divisions where risk and value are most critical. For the first time in Company X operations a commodity lead is appointed to leverage derivatives. Procurements mandates are to drive down opex costs with a price led strategy and curb access demand across shared service consumption. Key markers for company success are shareholder value and contained end user pricing to ensure market capture is held and if possible increased on the back of other companies not transforming quick enough causing further supply shocks.

Considerations - As can be seen in the final solution above, Company X valued its labour force for many years but had no choice to shift to automated production in the end to counter economic forces created by government and central banks. The decision of Company X to weaponize procurement will have a deflationary impact on all the 3rd parties that co-exist and service Company X, creating an ever-increasing spiral of less revenue, less profit and higher unemployment. This deflationary force will get ever stronger as Company X employs automation to replace the volatility of labour and better match turbulence in demand and supply.

As the industrial complex attempt to fight a global pivot of 40-year deflation catalysed by globalisation of markets on a scale never seen prior it will be the human worker and consumer that suffers on a scale the world has never seen. As oligarchs push for ever greater scale, efficiency, and profit, they consume all competing businesses as they grow either by acquiring them or demolishing them through scale and liquidity. Supply chains have no choice but to adapt and attempt to mirror the strategies for the oligarchs to elongate their relevance and offer consumers some choice. The question is, how long can smaller enterprises put up a fight?

Summary

As can be seen in the example of Company X and the selected problems of A, B, C and D, the supply chain is the most critical element of any business that mines, imports or produces product to the market. A 40-year deflationary cycle allowed businesses to maximise profits to consumers by driving operations that exploited both people and nature. Corporations exploited the emerging countries desire to bring their populations out of poverty and western consumers ignorance to preferring the consumption of cheap goods at the expense of their own living standards. Media has convinced us that consumption is the path to happiness and the shallow portrayal of success is to be prized over long-term security and contentment.

So, what are business to do moving forward? It is likely the central bank's announcement for monetary tightening will be the shortest in history. As we have progressed through the 70's to present, each crash has been corrected with ever lower interest rates. This is because as time progresses more and more debt has been pushed into the system to prop up gaping holes in liquidity and GDP. The more debt in a system, the less interest rate hikes are required to collapse a system. If we look at the recent sell off equities at the beginning of Jan 2022, this sell off came on the announcement of rate hikes without even a base point being raised. US inflation is now at 7% officially. As highlighted earlier in this report, if we measure the CPI against 80's measurement the inflation is at 15%. So, we are negative 6+% or negative 14+% real rates in the US. This means the next crash will be caused by rates rising 100 to 200 basis points and the real rate of interest will still be negative 5, 6, 7 per cent. This has never happened before. It is not common knowledge, but the information can be sourced. In 2008 the official bail out figure for the mortgage-backed security crisis and economic collapse was circa \$750 billion. This burden was to be

the responsibility of the taxpayers and society simply accepted it. As shocking as this was, the real figure that was printed to bail out the economy was \$30 trillion. You read that right, \$30 trillion was the real amount of open market operations the FED took part in back in 2008. These numbers have only just been published. The US government wanted these stats kept secret and they were only recently released.

Back to the question then of what can businesses do to prepare for economic Armageddon? Jigsaw are predicting further inflation as we progress through 2022 as interest rates creep up more to retain central bank credibility than to curb inflation. This will cause the debt market to implode, commodities to rise further and unemployment will skyrocket. Businesses will likely need to contract shared service functions and drastically control opex expenditure across marketing, travel, human resources, and other functions that are not directly attributed to the mechanics of supply and demand. Pragmatic evaluation of future consumer demand is going to be key so operations can pro-actively right size costs to serve markets. Value chain integration is essential. Owning supply and removing 3rd party risk re raw materials will remove competition for supply, allowing production to be predictable and costs managed. Jigsaw believe there will be a surge in manufacturers acquiring junior mining producers to enable a more cost-efficient holding of working capital and drive greater economies of scale through their own supply chains. It is possible over the next 20 years corporations will be hard to categorise as FMCG or Mining operations, as the umbrella brand will own multiple sectors that are inputs to a product. Then there is the replacement of labour itself via technology. Jigsaw believe skilled labour across the supply chain will be highly valued over the next decade, more so than we have seen in the past 30 years in developed countries. This demand however will not counterbalance the mass unemployment of workers across the shared service complex.

In our crude supply chain example, the issues with labour are hard to ignore. For a corporation it is costly, volatile, and hard to expand and contract in sync with market shocks. Like currency, labour requires flexibility to expand to economic requirements as a failure to do so is deflationary. So, in the short to medium term, it makes sense for any board to remove this constraint on growth and replace people where possible with algorithms. What about the long-term impacts of such a shift? We solved monetary elasticity by unpegging the currency from a store of true value which was historically gold, silver and go back further copper. This policy was not actually required back in 70's as ratios can be used instead. Still, we can see in 2022 with all the debt, corruption, and inflation, replacing a system with another can create dire consequences eventually. Over the course of 40 years currency value has lost so much power a chocolate bar has gone from 20c to \$2.50 and likely has fewer quality ingredients than it did back in the 80's. Over the next 40 years, which will be the world our kids live in and their kids, will there be employment at all? Who will consume? How will we earn a living? A world with 7 billion people which is ever expanding surely cannot afford to shift from a labour economy to a digital economy? The consequences are both obvious and drastic. Maybe this is where government policy needs to head, to assess not what we can do, but what we should do for the greater good of humanity. We have tried growth at all costs and all it seems to do is create a greater transfer of wealth to the few at the cost of many. The illusion is that the many believe they are gaining in this process as they get to consume i-phones and 80-inch TVs at a 5th of the price they should cost. The illusion is many believe this is wealth. It is simply hand to mouth consumption. The same goes for a property portfolio of 5 houses all financed with a 5% deposit negatively geared income via renters. This is a Ponzi scheme of debt, not wealth. Yes, the nominal value of stocks, houses and bonds may rise and servicing the margins and debt to hold these assets may be cheap, but what does that mean in a new world where the cost of consumption is accelerating, wages and employment are contracting, taxes are rising, and interest rates explode? The only people who are benefiting from this world focussed on growth at all costs are segments of emerging markets and the already rich who own assets outright and can acquire more at will as they have access to money at a cheaper rate and superior buying power. The economy and future living standards feels like a wheel filmed spinning. Its moving forwards so fast the frames cannot capture it, so it gives the impression its spinning backwards. Our global economy feels like an inverse of this. The wheel is spinning backwards at such a rate it is only an illusion it is rotating clockwise.