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BALANCING ELEPHANTS

Saskatchewan's Return On Investment: SASKFERCO

BY GERARD A. LUCYSHYN



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EXECUTIVE SUMMARY

The butterfly effect is used to describe small decisions that can eventually lead to large consequences. The butterfly effect is dependent on sensitivity to a set of initial conditions in which a change will result in a magnified outcome. The Saskferco joint venture was a \$68.5M investment decision made by the Saskatchewan government in the mid-1980's as an attempt to further diversify the province's economic base and speed the transition of government-controlled enterprises into private-control. Sixteen years later the province's investment decision would yield \$1B in cash returns along with over \$3B dollars in private investment and economics benefits for provincial residents.

This paper takes the reader through the economic conditions surrounding the Saskferco investment decision, providing a clearer view of history. With the economic context established, the paper calculates Saskatchewan residents' simple rate of return on their investment. The Saskferco investment decision turned into being an example of the butterfly effect where a relative small decision made a significant contribution to Saskatchewan residents for at least one, and perhaps many, generations.

Table 1		
ROI, IRR, CAGR Saskferco v. S&P/TSX Composite (1991-2008) ¹		
Investment Returns	Saskferco	S&P/TSX Composite
ROI (Simple)	1497.96%	172.80%
IRR (Annual)	22.51%	8.35%
CAGR	17.71%	8.62%

Data Source: CIC Annual Reports 1990-2009. London Life <http://www.mwfg.ca/resources/content/d129.pdf>.

THE CALM BEFORE THE STORM: Saskatchewan's economic environment - 1970's

Going into the 1970's with motion sickness can describe Saskatchewan after emerging from the 1960's economic roller coaster with extreme highs of 15% real gross domestic product (constant 1986 dollars) growth to extreme lows of -10%. The 1970's brought much needed relief to the economic uncertainty left behind by the 1960's. Saskatchewan would finally experience steady GDP growth, albeit on a declining basis, but steady growth nonetheless.

Throughout the decade the average real annual economic growth rate (in constant 1986 dollars) was 4.9% which outpaced the national average of 3.9%. By the end of the 1970's, the farming sector emerged as the major contributor to the Saskatchewan economy. With improvements in production and strong international demand, Saskatchewan led the country in cereal crop exports with close to \$3B just in grain alone. With 69,200 family farms averaging approximately 970 acres per farm, Saskatchewan accounted for about 50% of all farmland in Canada.²

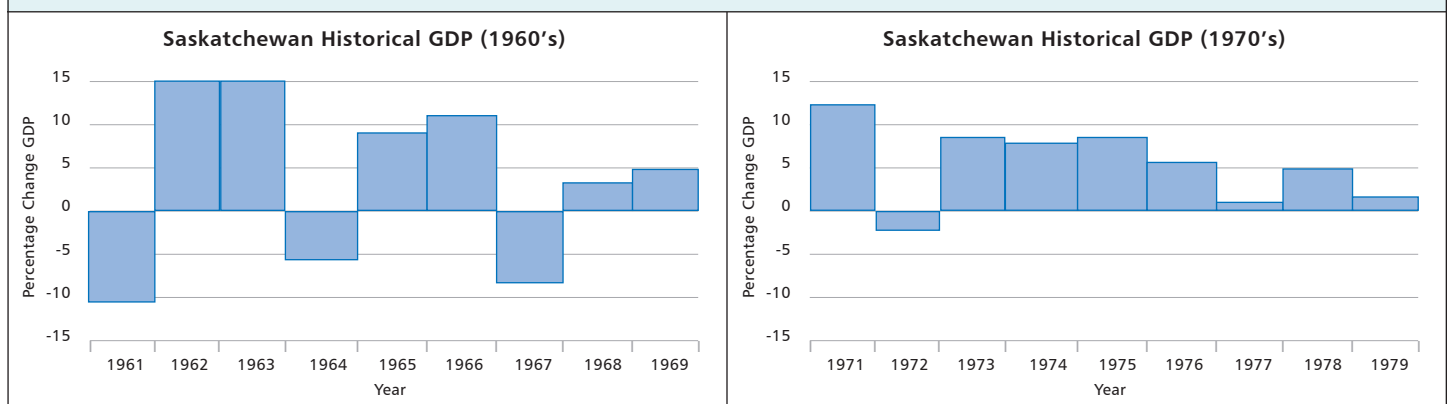
Economic diversification was the plan. This idea was to ensure Saskatchewan's economy was broad enough that economic stability for the province could be

maintained. Major export initiatives in oil and gas, potash, and uranium were pursued.³ By the end of the 1970's these industries had made significant strides; crude oil exports reached \$1.3B per year making Saskatchewan the 2nd largest oil producer in Canada.⁴ Potash exports were \$1B per year making Saskatchewan an international leader.⁵ Expansion of uranium mining operations with two new large scale mines (Rabbit Lake and Cluff Lake) propelled uranium exports up to \$232M per year putting Saskatchewan as the second largest uranium producer in Canada.⁶

Net investment, known as gross fixed capital formation (GFCF),⁷ started out at approximately \$644M in 1970 and would experience real growth (constant 1971 dollars) by 56.1% throughout the decade ending in 1980 at \$1.467B. The composition of the GFCF in 1970 was 22% government investment and 78% business investment. By the end of the decade GFCF composition would transfer 9% from government investment to private business investment. Government investment would be 13% of GFCF while business investment increased to 87%. The largest changes in GFCF resulted from: a whopping 221.31% increase in residential construction followed by very large increases in investment in machinery and equipment of 165.84% and non-residential construction of 117%. The 1970's brought about, as planned, broadening and the diversification of the Saskatchewan economy, all with major backing by government and government initiatives.

FIGURE 1

Historical GDP for Saskatchewan 1960's and 1970's (Constant 1986 dollars)

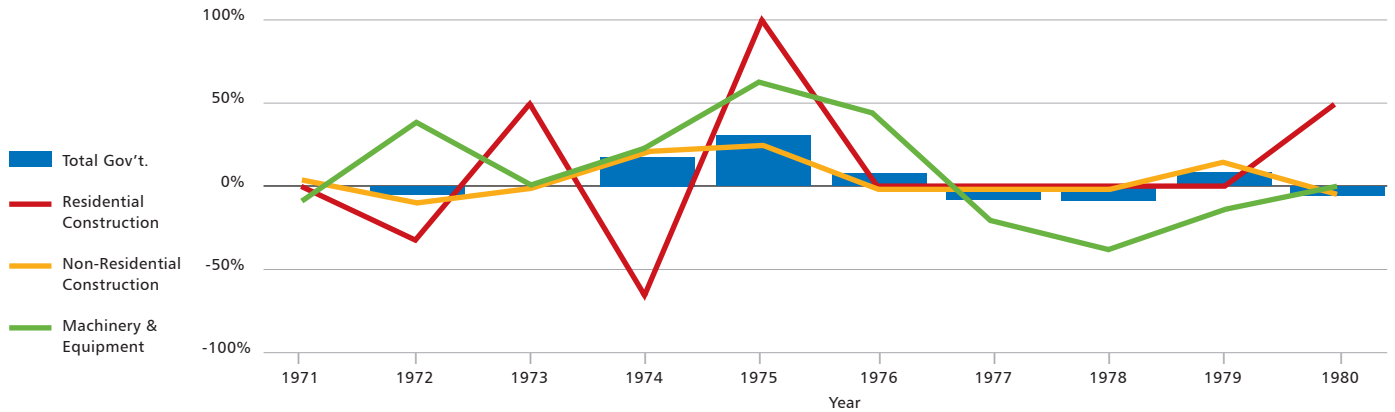


Data Source: Saskatchewan Economic Review.

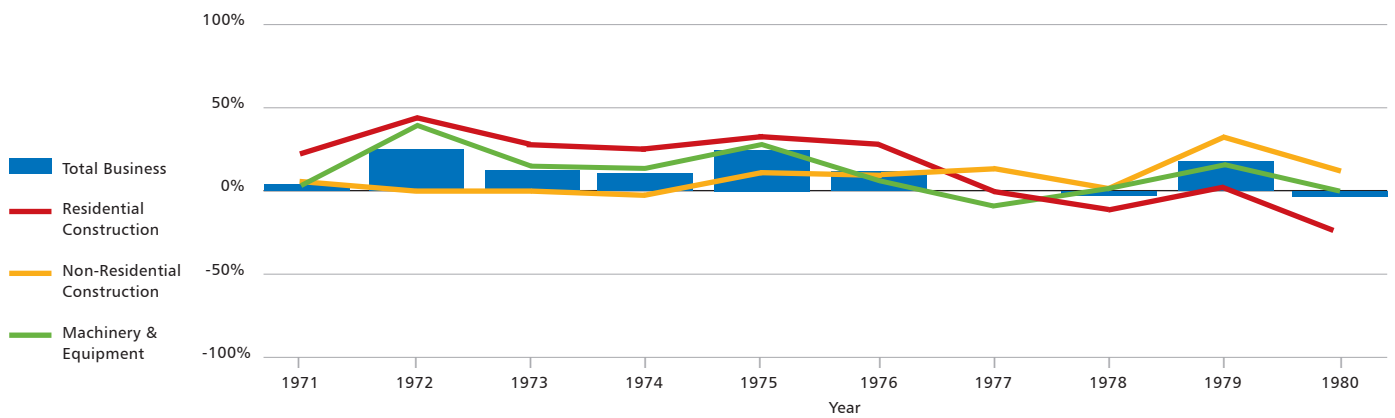
FIGURE 2

Changes in Saskatchewan's GFCF: Government (1970's) and Business (Constant 1971 dollars)

GOVERNMENT: Residential Construction, Non-Residential Construction, Machinery and Equipment (Real Change)



BUSINESS GFCF: Residential Construction, Non-Residential Construction, Machinery and Equipment (Real Change)



Data Source: Saskatchewan Economic Review.



“The economic challenge during the 1980’s will be to continue to expand primary production and to generate further benefits by increasing the processing of our resources in Saskatchewan. This economic strategy is central to our objective of ensuring a high quality of life for all the citizens of our province.”

- Allan Blakeney, Premier of Saskatchewan, December 1981

A CHANGING WORLD: Saskatchewan's economic environment - 1980's

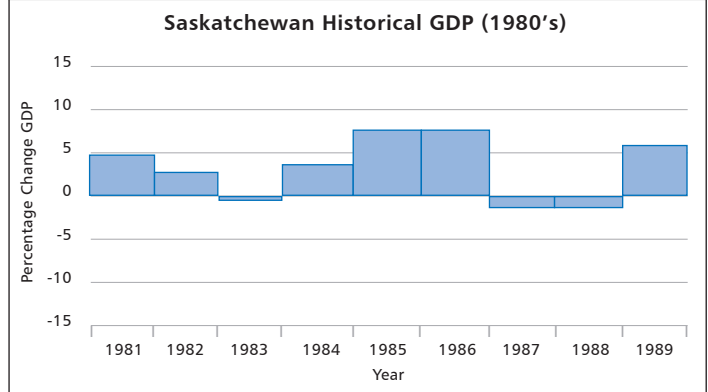
The 1980's would bring economic shock waves that would send Saskatchewan into lows that had not been experienced since the 1960's. However, this time the World had become a much different place than it was back in the 1960's, a more interconnected place, one that made Saskatchewan more susceptible to issues far from its borders. The beginning of the decade was relatively positive with GDP and average growth rate of 5%, but soon that growth rate would disappear into the 1982 recession. Recovery would begin in 1983 and peak in 1985 with a real annual GDP growth rate of 7.5% (constant 1981 dollars). This would prove to be the calm before the storm, as Saskatchewan would plummet into the sharpest economic downturn it had experienced in the past twenty-five years, in the 1987-1988 recession.

With two recessions and one minor recovery, Saskatchewan would experience a real average annual economic growth rate of only 2.9% across the decade, the same as Canada's annual average of just under 3%. Unfortunately, neither the days of large real annual growth rates seen in the 1960's (10%-15%) nor the steady growth rates of the 1970's would reappear, making the 1980's one of the most stagnant economic growth periods in Saskatchewan's history.

Contributing to the first couple of years of 1980's positive GDP growth was excellent crop yields; in fact, crop yields had set new record levels. Saskatchewan producers along with US and foreign producers all had fantastic harvests but flooded the world grain market with excess supply. The excess supply caused prices to tumble quickly nearing devastation but were saved by the crop failure in the USSR. Excess supply and low prices were not the only thing that would affect Saskatchewan producers in the 1980's. Production levels would be ravaged by drought, snow, excessive rain, and grasshoppers. The agriculture sector would not have favourable positions until 1990.⁸ Grain exports started the 1980's at \$1.78B and by 1989 suffered a 14% decrease ending at \$1.6B.⁹

FIGURE 3

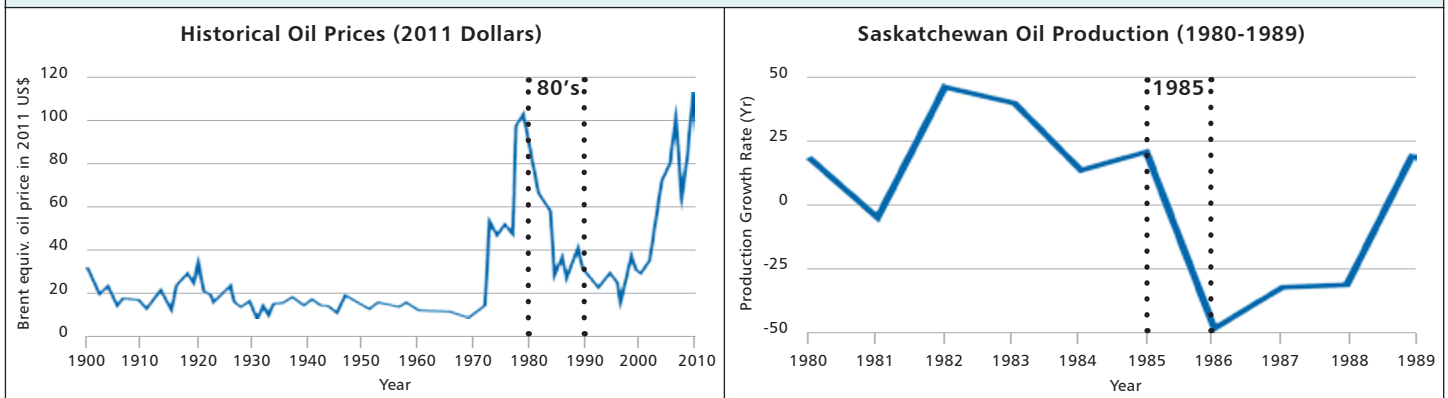
Historical GDP for Saskatchewan 1980's (1981 dollars)



Data Source: Saskatchewan Economic Review.

FIGURE 4

Historical Oil Prices Brent Equivalent



Data Source: Historical inflation adjusted oil price per barrel, (Brent Equivalent in 2011 dollars), based on amounts shown in BP's 2012 Statistical Review of World Energy.

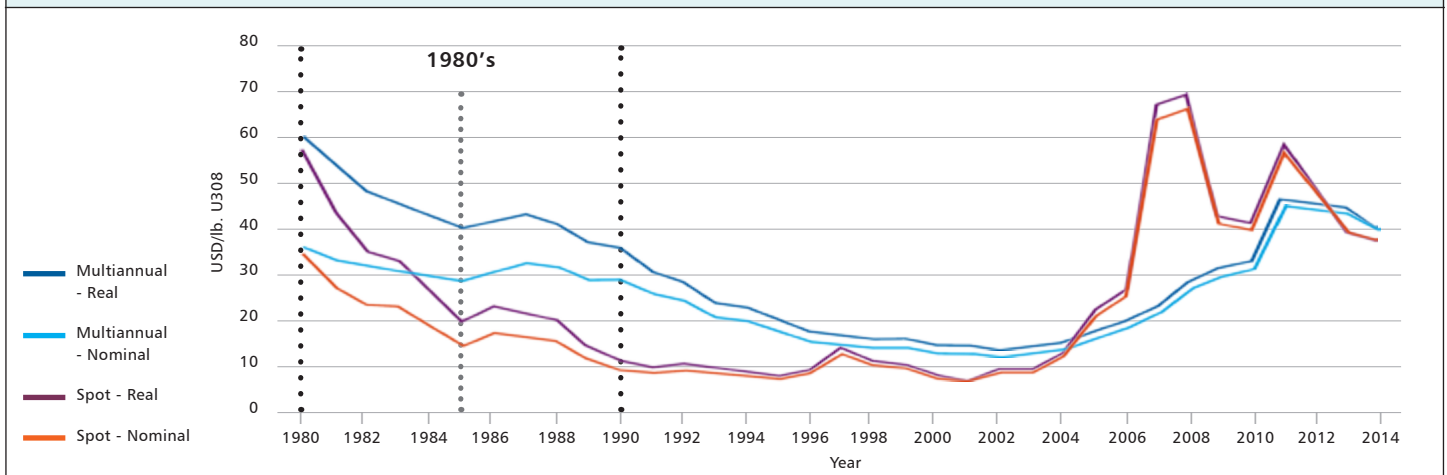
Data Source: Saskatchewan Economic Review.

The oil and gas sector would not fare much better. In an effort to increase investment in Saskatchewan's oil and gas sector, the provincial government under the leadership of Grant Devine introduced several favourable policies in 1985. These new policies would reinvigorate new capital investment into Saskatchewan's oil patch and bring about a new record of 3,551 wells drilled.¹⁰ However, this flurry of economic activity would be very short term because 1986 would see world oil prices take a nosedive into the sharpest price decline since the US Civil War in 1861-65. This would bring essentially all oil exploration and drilling in Saskatchewan and other parts of Canada literally to a standstill.¹¹ International

oil prices plummeted primarily due to OPEC and non-OPEC ramping up supply and slashing their prices in response to the breakout of war between Iran and Iraq. Domestically, Saskatchewan's oil and gas sector had to deal with the Canadian government introducing adverse provisions in the National Energy Program and the US abolishing its price and allocation controls.¹² Despite the price downturn and other market externalities, Saskatchewan crude oil exports experienced an overall increase of 23% over the decade, starting 1980 with \$901M exports and ending in 1989 with \$1.1B in exports.¹³

FIGURE 5

Historical Uranium Prices and Saskatchewan Production (1980-2014)



Data Source: DIW Berlin. https://www.diw.de/de/dw_01.c.535933.de/presse/dw_roundup/nuclear_power_and_the_uranium_market_are_reserves_and_resources_sufficient.html.



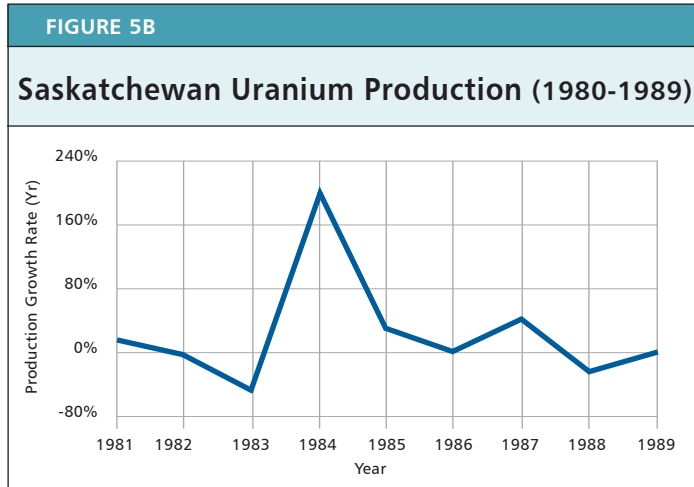
“This year, 1982, marks a fundamental turning point in the economic life of Saskatchewan. The province begins a new era, with a new government committed to the economic betterment of all citizens of this province.

Saskatchewan has been noted, in the past, for its high degree of government involvement in the economy. Yet Crown ownership or control offers no guarantees of success or security when our major economic sectors face world markets.

I have no doubt that undue reliance on government has hampered the province's growth by reducing private investment. In 1981, for example, 35% of total investment in Saskatchewan was publicly funded. The proportion in Canada as a whole was 26%. In Alberta, it was only 19%. With just over twice our population, Alberta had almost five times Saskatchewan's amount of private investment.”

- Grant Devine, Premier of Saskatchewan, November 1982.

With agriculture decreasing and poor international oil prices, potash and uranium would lead investment in Saskatchewan during the 1980's.¹⁴ There were significant increases in uranium production, particularly after the opening of the Key Lake mine which had tripled Saskatchewan's production capacity.¹⁵ Uranium exports would increase dramatically by 137% over the

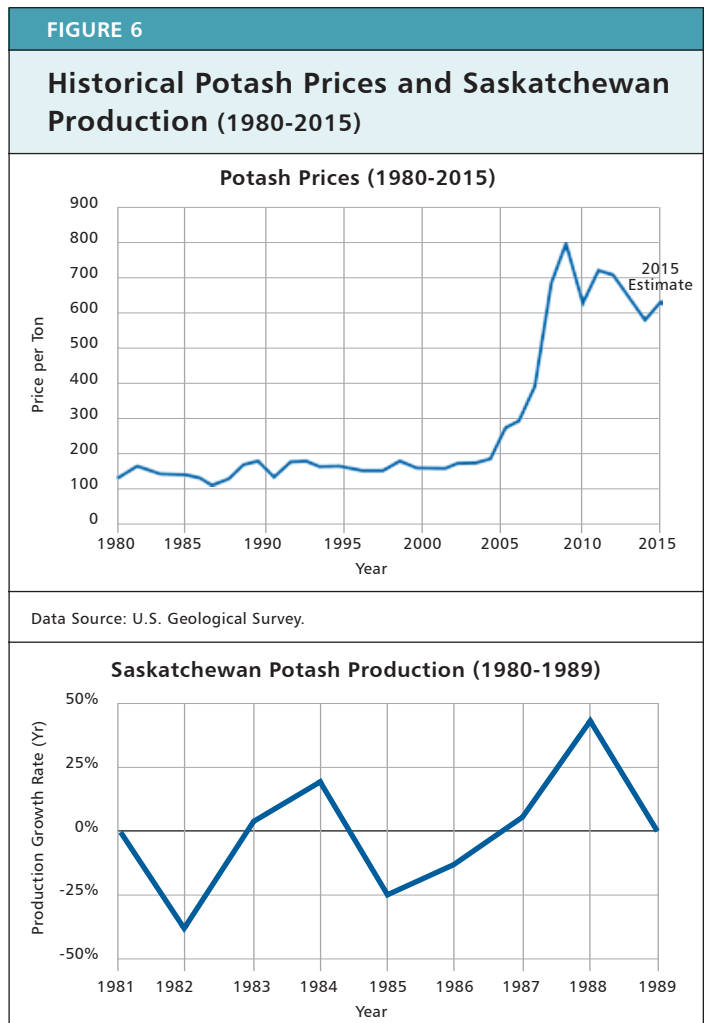


Data Source: Saskatchewan Economic Review.

decade starting in 1980 at \$200M and reaching \$473M by 1989.¹⁶ However, as with oil and grain, international prices for uranium dropped by 19% over the decade due to an oversupply in the international markets.¹⁷

Potash markets suffered alongside the farming markets during the 1982 recession.¹⁸ However, a reprieve came in 1984 as US, Brazilian and Japanese potash demand increased and Saskatchewan producers increased their potash production by 29%. This demand increase, however, would be pushed back down by 20% as China cancelled its annual order of 450,000 tonnes of Saskatchewan potash.¹⁹ Across the decade potash exports would decrease by 14%. Starting in 1980 with exports of \$628M and ending in 1989 with potash exports of only \$551M.²⁰ Unfortunately, international potash prices would remain stagnant for the next 15 years until dramatically increasing in 2004-2005 and peaking close to \$800 US a ton.

The diversified economic base of grain, oil, uranium, and potash all suffered decreases at the hands of primarily external markets forces and poor international economic conditions, Even Saskatchewan investment would be hampered by external conditions of a tightening of monetary policy and by increasingly



Data Source: U.S. Geological Survey.

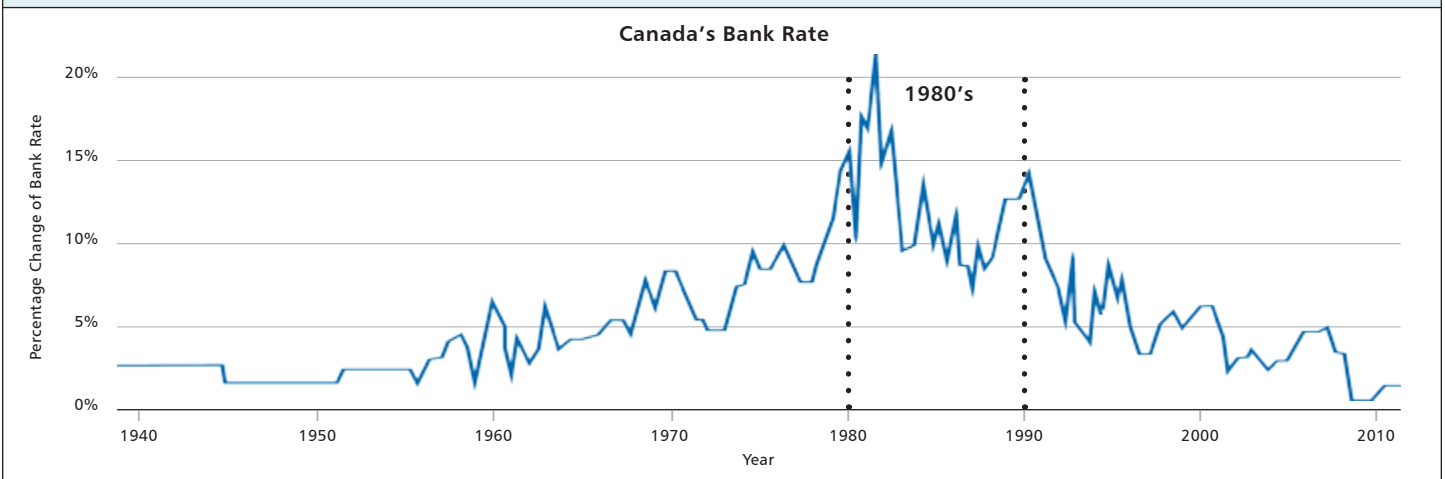
Data Source: Saskatchewan Economic Review.

cumbersome foreign investment regulations.²¹ Starting in the 1980's, interest rates were at historical levels near 23% and then dramatically fell to 7% by the mid-1980's. Consequently, investment would not rebound until 1990, the same time agreeable growing and harvest weather returned, along with higher interest rates. Even world oil prices would sharply increase with the breakout of the first Gulf War.²²

GFCF in Saskatchewan was at \$4.7B in 1980 and would decrease by 9.93% by the end of the decade finishing at \$4.2B. Investment distribution would start out the 1980's with government investment at 12% of GFCF and business investment at 88%. By the end of the decade, 2% of GFCF would be redistributed from business investment to government investment. The 1990 GFCF distribution would be government investment at 14% and business investment at 86%. The largest contributing factors to the change in GFCF were: a very

FIGURE 7

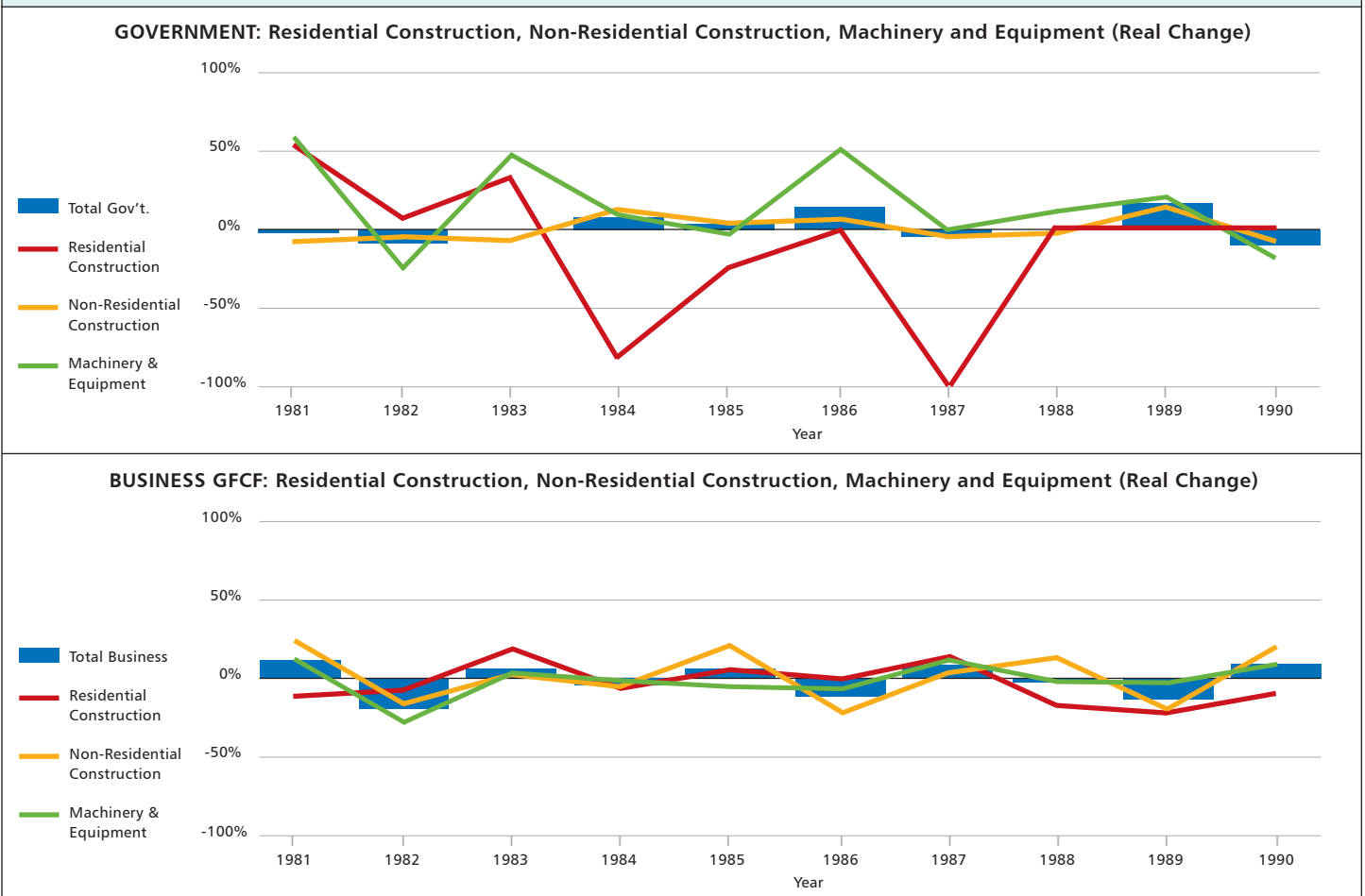
Historical Canadian Bank Rate (1940-2010)



Data Source: Saskatchewan Economic Review.

FIGURE 8

Changes in Saskatchewan's GFCF: Government (1980's) and Business



Data Source: Saskatchewan Economic Review.

large decrease in government residential construction of nearly 100%, a 60% increase in government investment in machinery and equipment and a 28% decrease in private investment in machinery and equipment.

A worldwide recession, oversupply in all the economic base markets, low commodity prices, historical economic slowdown, and incredibly high interest rates all stunted Saskatchewan's GDP growth. The general economic principle, *reverse accelerator effect*, is clearly evident in

Saskatchewan during the 1980's. This principle states that investment will decrease at a faster rate than GDP over time as producers perceive an economic slowdown and begin to engage in more severe cut-backs and layoffs. Since investment is much more volatile than GDP, it will always increase or decrease at a steeper rate than GDP. Thus if the growth rate of demand in any specific industry slows then the net business investment into that specific industry diminishes.²³

BLACK TUESDAY WAS BAD, BLACK MONDAY WAS WORSE: tail end of the 1980's

Any economic slowdown brings falling investment, and low commodity prices coupled with high interest rates, especially with political turmoil results in a market correction. The correction that came in 1987 would prove to be worst than the correction remembered as the *Wall Street Crash* of October 29, 1929 (also known as *Black Tuesday*).

Black Tuesday evaporated between \$8B to \$9B (12.8%) of shareholder value in a single day caused by pandemonium and panic selling as investors tried to liquidate their holdings at any price. *The New York Times* described the day as “*The market is on a rampage and is no respecter of persons. It washed fortune after fortune away yesterday and financially crippled thousands of individuals in all parts of the world.*”²⁴

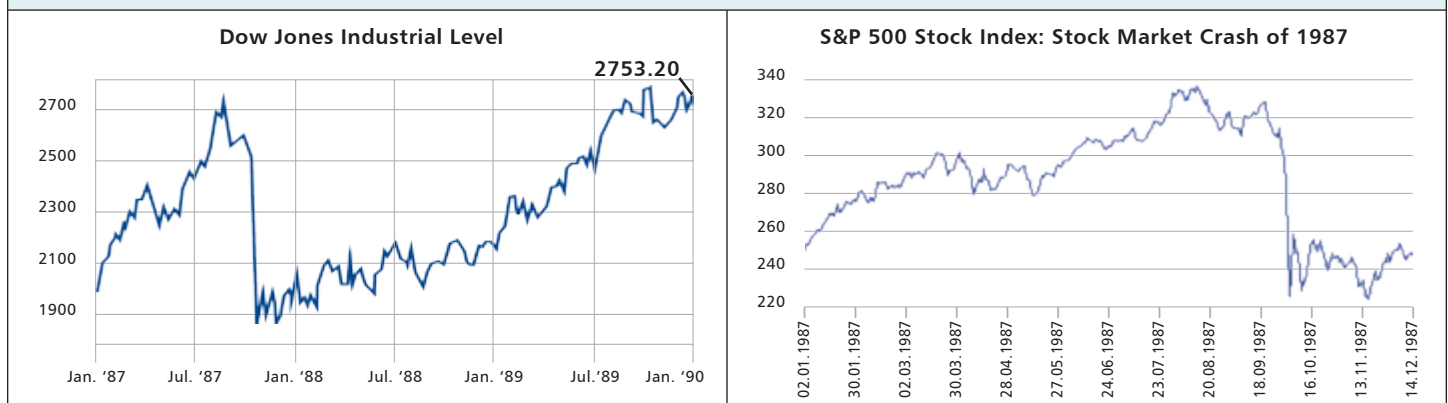
Historical photographs of flash mobs gathering in the streets on that fateful day still send shivers through modern day investors. The vivid images of men and women wandering the streets trying to learn what happen as the ticker failed to keep up with the enormous

volume of trading that day. Literally thousands of investors and brokers simply had no clue what prices were at the close of trading, so they poured into the streets gathering into groups and scouring over the ticker tape late into that evening, only to learn they had been financially wiped out hours before.²⁵

History would repeat itself fifty-eight years later, but, this time the fallout would be much worse. Black Monday occurred on October 19, 1987 as panic selling started in the Tokyo markets. In fact, Tokyo closed at the 5th largest loss in its exchange history. Hong Kong and Sydney markets were next, plunging into the worst losses in a single day in their histories. Followed by a fall of 15% in Paris and a 13% fall in London markets. By the time New York closed, the Dow Jones Industrial Average had plummeted 508.32 points (22.6%) and in Toronto, the TSX300 (Toronto Composite 300 index) closed down 407.20 points (11%). After the final bell rang ending Black Monday, approximately \$500B US of shareholder value had disappeared from world markets, marking Black Monday as the single worst day in trading history, ever. Canadian investors would lose \$37B US from their portfolios and it would take nearly two years for market indexes to rally and reach pre-crash levels. Black Monday would mark the changing world, as the markets in all countries became instantaneously interconnected.²⁶

FIGURE 9

Dow Jones Index and S&P 500 Stock Index - Black Monday 1987



Source: Cardenal Andres. "10/19/1987 : Lessons from the Stock Market's Black Monday", The Motley Fool. June 10, 2015. <https://www.fool.com/investing/general/2015/06/10/101987-lessons-from-the-stock-markets-black-mond.aspx>.

Source: Sniper Market Traming (2002) <http://www.sniper.at>.

RETURNING TO STABILITY: Saskatchewan's economic environment - 1990's



“The foundation of the new direction of economic diversification in Saskatchewan has been built on individuals participating in their local and provincial economy ... The Government has also sought out joint venture partners to expand the economic base of the province.”

- Lorne H. Hepworth, Minister of Finance, December 1990



“International market conditions, grain price wars, the national recession and the province's high debt load have restricted the government's ability to address the slowness in the economy. These factors can be expected to continue to constrain the government's ability to react in the near future.”

- Ed Tchorzewski, Minister of Finance, December 1991



“The pick-up in economic activity is quite an accomplishment given the economic weakness around the world. The core of our recovery has been higher agricultural and mining output, higher manufacturing shipments and a sustained increase in retail activity. A less restrictive monetary policy, both in terms of a lower dollar and declining interest rates, has been an important source of economic strength for the Province over the course of the year.”

- Janice MacKinnon, Minister of Finance 1993

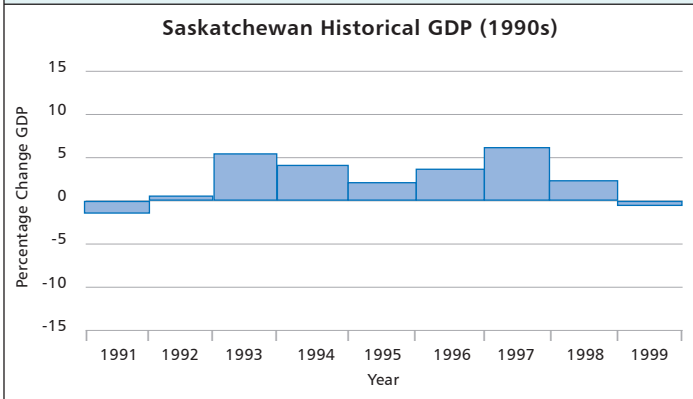
Saskatchewan would continue to underperform entering into the 1990's, as would the rest of Canada and the rest of the World. Slowly, governments, companies, and people clawed their way back from the 1987 crisis. Laden with large debt loads from the 1980's, Saskatchewan would continue to face poor international commodity prices and, as other countries moved to protect their own interests, protectionary measures began to rage. It would take until 1993 before the effects of the 1987 downturn would past into history and positive economic growth to began.

Marking a new cycle of positive economic growth in Saskatchewan, this trend would continue until 1998. The plan to diversify and broaden the natural resource economic base that began in 1980's placed Saskatchewan in an excellent position to capitalize on the upturn in the economy of the 1990's. As the economy started to expand, unemployment began to fall, and incomes were once again on the rise. The grasshopper invasions, droughts, worldwide recession, and Black Monday would fade from memory as Saskatchewan embraced positive economic growth.

Over the next five years economic activity flourished, Saskatchewan enjoyed a real annual average rate of economic growth of 3.4% (in constant 1986 dollars), personal disposable income growth averaged nearly 3.2%. By the end of the decade, 30,000 new jobs had been created, the unemployment rate decreased 2.8% from 8.2% in 1992 to 5.9% in 1998. Oil sales increased 86.5%, Potash sales increased 33.7%, and uranium increased 90.8%. Saskatchewan exports, retail sales, manufacturing shipments and housing starts were all stronger than the national average.²⁷ An increase in business confidence and a positive outlook on the economy helped businesses return to investing in Saskatchewan.

FIGURE 10

Historical GDP for Saskatchewan 1990's (Constant 1986 dollars)



Data Source: Saskatchewan Economic Review.

“Over the past few years, businesses have responded to these efforts by creating jobs for Saskatchewan people in 1998, Saskatchewan recorded the highest average employment level in its history 478,600 - 4,400 higher than the previous year. More importantly, part-time jobs are being replaced with full-time jobs. That means increased earnings and a better quality of life for more Saskatchewan people - On balance, Saskatchewan people can take pride in the progress they have made to build and diversify our economy.”

- Eric Clien, Minister of Finance, December 1998

FERTILIZER, WORLD MARKETS AND GLOBAL AFFAIRS

The simplest explanation of how important fertilizer is to the agricultural sector for any non-agricultural person is the saying that *fertilizer equals food*. Fertilizer can be divided into primary, secondary, and micronutrients. Nitrogen (N), Phosphorus (P) and Potassium (K) are all considered primary plant nutrients. Nitrogen is the main driver of yield; it increases crop size and is the most important the primary nutrient; it is, in fact, the one that is most commonly lacking in soil which is why annual application of nitrogen is critical. An investment in nitrogen fertilizer proves to be highly profitable for growers since annual application to crops usually returns 7 times the cost of the amount invested.²⁸ The process of producing nitrogen fertilizer involves using natural gas as the raw material and processing it into urea (nitrogen fertilizer), ammonia, and other industrial nitrogen chemicals.²⁹

Nitrogen demand is driven by population and income growth. The 1980's brought significant changes in the world nitrogen market as supply began to tighten. With tightening world supplies, costs to North American producers increased substantially, especially if they needed to import nitrogen from offshore suppliers. However, this shortage of supply on the international market provided at that time a fantastic domestic opportunity to produce nitrogen fertilizer to supply domestic markets and even to export fertilizer to foreign markets such as Asia and Latin America. Between 1986-1991 the world consumption of nitrogen fertilizer increased by 10% (1M tonnes). The annual world demand for nitrogen was 11.4M tonnes annually.³⁰ The strongest demand came from India, China, and North America. Due to the geopolitical disruptions in the former Soviet Union and the Gulf world, net demand diminished. In fact, urea production in Iran and the Arab Gulf states in 1989 decreased by 500,000 tonnes from 1988.

The USSR economy was stagnant in March 1985 when Mikhail Gorbachev assumed the leadership of the Communist Party and President of the Soviet Union. During his leadership, Gorbachev would impose two significant policies aimed at helping the USSR become



“The Saskatchewan economy continues to grow. It averaged 3.8% real growth per year from 1993-1998 compared to the national average of 3.1%. Diversification has allowed Saskatchewan to remain strong in the face of uncertain world markets.”

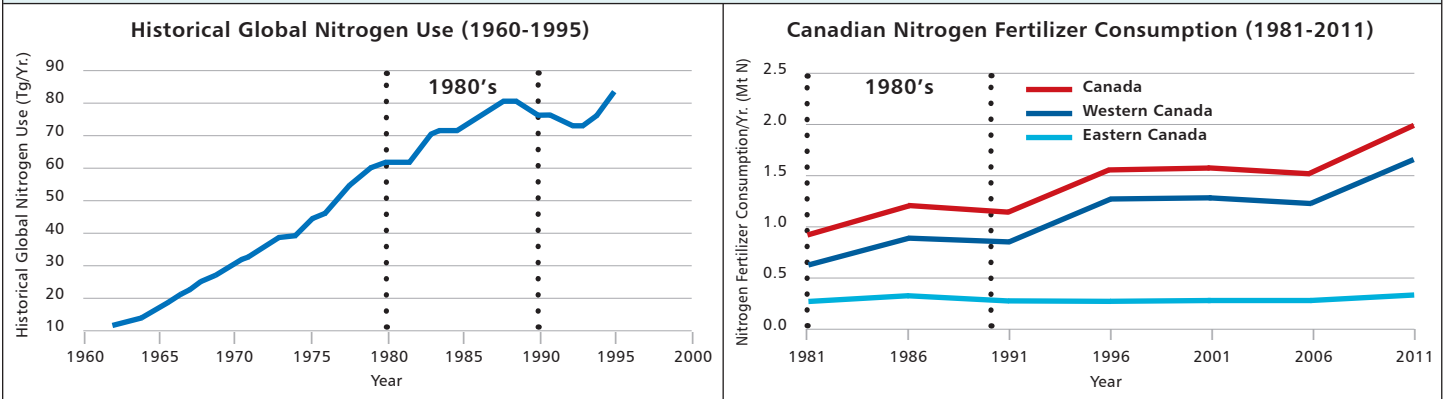
- Saskatchewan Bureau of Statistics, 1999

more prosperous and productive and which inevitably would lead to the collapse of the Soviet Union. *Glasnost* (political openness) eliminated official government repression such as the banning of books and the use of secret police to keep tabs on citizens. It also provided Soviet citizens with freedom of the press, while opening the electoral process to more than one political party, and the release of many political prisoners. *Perestroika* (economic restructuring) loosened the government's grip on the economy and allowed private initiatives to lead to massive innovations. Individuals and cooperatives were allowed to own businesses for the first time since 1920's, and foreign investment was encouraged rather than prevented. Consequently, a privatization movement took hold of the Union, and by 1989 several revolutions had broken out as a result of “*radical reforms*”, which the population wanted more. By December 25, 1991 the Soviet Union had collapsed.³¹

The changes occurring in the Soviet Union between 1985-1991 sent shock waves of uncertainty around the world having a profound effect on demand levels within the international markets. The nitrogen market in particular was affected as demand declined for the first time since the 1960s. However, by 1991 demand for nitrogen had rebounded and once again it was on the rise both globally and in Canada.

FIGURE 11

Historical Global Nitrogen Use (1960-1995) and Canadian Nitrogen Consumption (1981-2011)

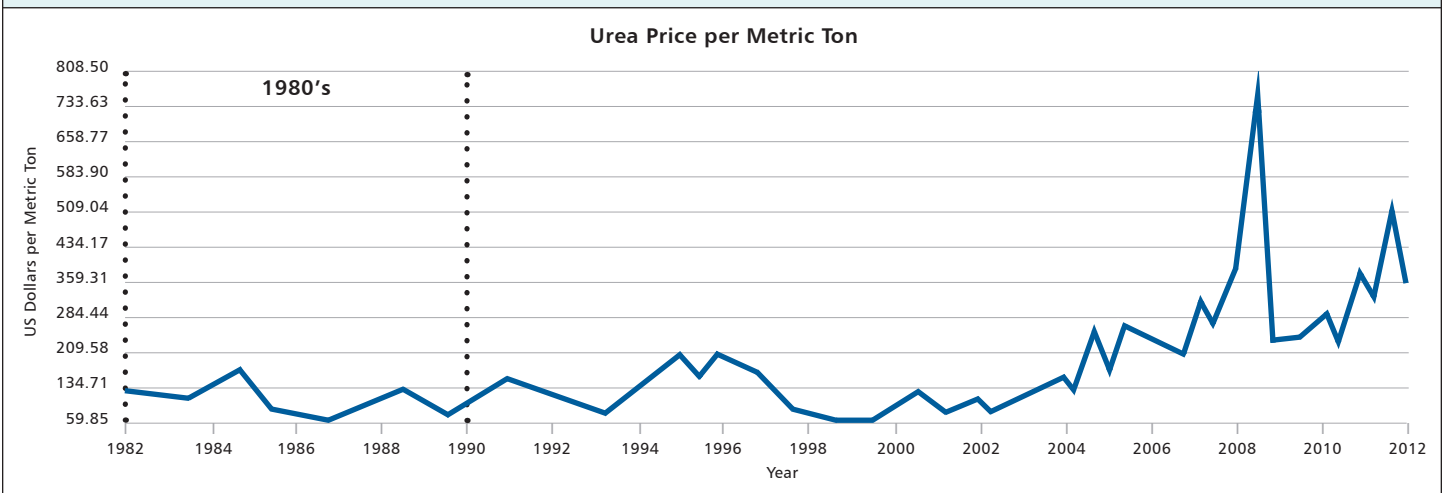


Data Source: Department of Botany and Ecology, Norwegian College of Fishery Sciences, University of Tromsø, 2004. http://lepo.it.da.ut.ee/~oll/eutr/html/htmlBook_4.html.

Data Source: Government of Canada, Agriculture and Agri-Food Canada. Nitrogen Fertilizer Consumption 1981-2011. <http://www.agr.gc.ca/eng/science-and-innovation/agricultural-practices/agriculture-and-climate/agricultural-ammonia-indicator/?id=1461268525553>.

FIGURE 12

Historical Urea Price (1984-2012)



Data Source: Investment U: The Educational Arm of The Oxford Club. <http://www.investmentu.com/article/detail/27523/investing-in-agriculture#.WMP-r28rL-s>.

A JOINT VENTURE NITROGEN PLAY: Saskferco

Saskferco Products ULC is a producer of nitrogen fertilizer and feed products for livestock; it was a joint venture between private enterprise and public investment.³² At the time of its sale in 2008 the joint venture was owned and operated by the Mosaic Company and Investment Saskatchewan. Investment Saskatchewan is a crown corporation with a mandate to enhance economic growth and diversification through the provision of investment capital and financing for the Province.³³ The Mosaic Company is the world's largest producer of potash and phosphates, two vital plant nutrients. Publicly traded since 2004, Mosaic is a fortune 500 company with over 9,000 employees located in over 40 countries.³⁴

In the mid-1980's as the world price of nitrogen was peaking at \$135/tonne and international political events began to unfold around the world, disrupting supply of this vital nutrient, the Saskatchewan government, at the time under the leadership of Grant Devine, approached Cargill Limited with a business proposal; a joint venture in a nitrogen-based fertilizer plant to be located in Saskatchewan. The idea was that with Cargill's extensive experience in the production and marketing of fertilizer, the Saskatchewan government's ability to provide some equity and financing guarantees, and along with North American market access, the joint venture would be very successful, benefiting both parties. It was speculated that up to 50% of Saskferco sales would be to farmers in the United States³⁵ while the other 50% would be sold to farmers in other key markets such as western Canada, Ontario, Quebec, and some countries in the Pacific Rim.³⁶

Construction of a nitrogen plant east of Regina began in May 1990 and generated about 2.8M person hours of work over the two years it took to complete the plant. Fifty-one weeks after the defeat of Grant Devine's PC government, operations began at Saskferco on October 13, 1992. The plant created 122 permanent positions, 17 contract positions and 10 permanent positions in the Regina head office.³⁷ The plant, located 45 km east of Regina at Belle Plaine, resulted from its strategic position in the delivery of fertilizer to major markets.

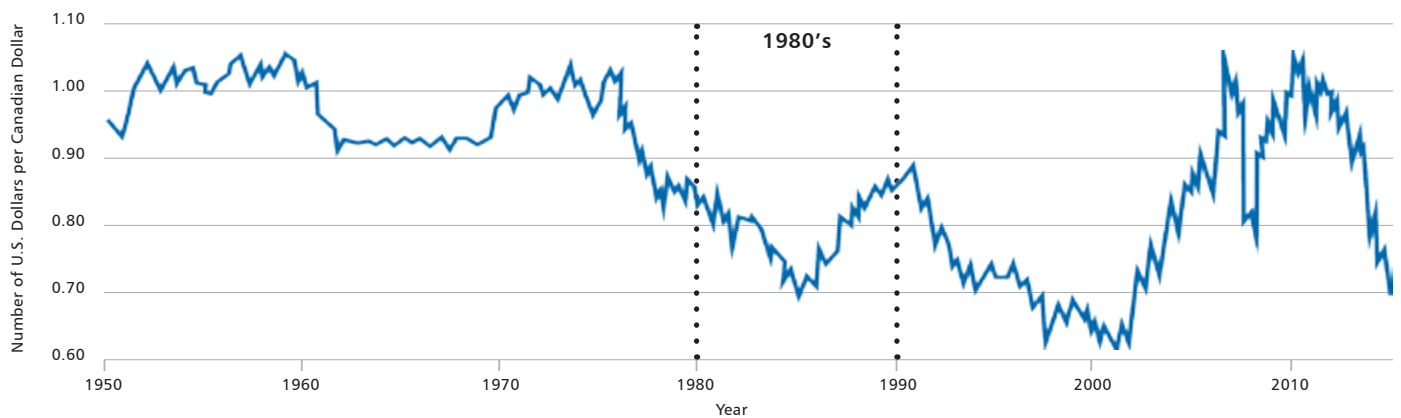
The building of the plant required 15,350 tonnes of equipment most of which was procured from Canada, Japan, and Europe. Natural gas is the feedstock for the plant and is supplied by the Trans Canadian Natural Gas Network through two pipelines and the water that is required in the production of fertilizer is drawn from Buffalo Pond (an artificial lake 15 km from the site). All electrical power supplied to the plant is from the Saskatchewan Grid.³⁸ The indirect employment spinoffs from the project were substantial, with the use of natural gas as its feedstock the plant, Saskferco is SaskEnergy's largest customer.³⁹ Running at full capacity, the Saskferco plant uses 18B cubic feet of natural gas as feedstock per year.⁴⁰

Capacity of the Saskferco plant at the time operations began was 406,000 tonnes of urea annually, which increased the North American capacity by 2.5%. At full capacity Saskferco could produce 600,000 tonnes of urea and 125,000 tonnes of anhydrous ammonia annually.⁴¹ The plant is one of the largest single-train urea granulation plants in the world.⁴² The Saskferco plant, at the time it was built, had the best ammonia and urea technology available⁴³ and had a zero wastewater discharge, which meant that no wastewater would be discharged into any waterway; instead, the wastewater would be captured in evaporation ponds.⁴⁴ The plant itself was designed to use the lowest possible energy consumption. In fact, Saskferco set industry records for its productivity and efficiency; in fact, Saskferco earned the reputation as "North America's Finest Nitrogen Complex" and consistently produced high quality fertilizer. The urea is sold through Cargill, Saskferco's exclusive marketing agent, and the fertilizer is shipped via truck or rail to markets around the world. The application period of nitrogen fertilizer is very short in North America; Saskferco was able to capture economies of scale from the complex's urea warehouse which is enormous and has the same footprint as 11 hockey rinks.⁴⁵

Financing the construction phase and the first couple of years of operation was done through both a debt and equity issue. Equity injections were 30% (~\$139M) and debt financing was 70% (~\$304.7M). Saskatchewan provided an equity injection of \$68.5M, Cargill and Citibank Canada provided the remaining portions.

FIGURE 13

Historical Canadian-U.S. Exchange Rates (1950-2012)



Data Source: Bank of Canada.

The debt financing was done through Saskatchewan's the Crown Investment Corporation's guarantee on a \$38.2M loan with a Canadian chartered bank, and the balance came from the issuance of medium-term notes with maturity dates set between 5-17 years. The first maturity date for the notes was in 1995.⁴⁶

Saskferco is a *fully-taxable* Canadian joint venture company with ownership of 50% held by Cargill Limited of Winnipeg (a subsidiary of Cargill Inc. of Minnesota) and 49% held by CIC Industrial Interests (Crown Investment Corporation which is a part of Investment Saskatchewan)⁴⁷ and a minority stake of 1% owned by Citibank Canada.⁴⁸ The total project was a lump-sum turnkey contract with Uhde worth \$444.4M Canadian.⁴⁹ The construction contract was paid on a cash basis with 40% of the total paid in German Marks and 60% in Canadian Dollars.⁵⁰

Saskferco would make debt repayments of approximately \$50M US between 1995 and 1998 during the time when the Canadian dollar had significantly weakened against the US dollar; in fact, Saskferco suffered large foreign exchange losses on the repayment of its debt notes.⁵¹ However, Saskferco was a success right from its inception. After the first full year of operation, the plant made \$300,000 and had already secured about 80% of the Ontario nitrogen fertilizer market.⁵²

“Saskferco, a joint venture between the American corporate giant Cargill and the Saskatchewan government, was according to the Gass Commission “handled in a very business-like manner” by professional civil servants and outside experts.”

- Janice Mackinnon, former Saskatchewan Minister of Finance

In 1994, Saskferco paid the Province of Saskatchewan its first dividend, \$7.2M. Saskatchewan would continue to receive dividends each year since then, with the exception of 1999. But, dividends were paid in 1995-1996 even while Saskferco self-funded a \$37.2M expansion. The Saskatchewan Crown Investment Corporation receive \$22.9M and \$31.2M, respectively in 1995 and 1996.

On June 23, 2008 The Mosaic Company (Mosaic had purchased Cargill's 50% interest in 2004) and the Investment Saskatchewan put its joint venture shares up for sale.⁵³ By 2008, after 16 years of operations, Saskferco's daily production capacity had increased by 74% to 2,850 tonnes of urea and anhydrous ammonia had increased by 443% to 1,860 tonnes, along with a daily production of 670 tonnes of urea ammonium. The Mosaic Company decided to sell its stake in the company to focus on its core business of potash and

Table 2

Province of Saskatchewan's dividends received from Saskferco (1990-2008)

SASKFERCO	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Investment (\$millions)	68.5																		
Dividends Paid (\$millions)	-	-	-	-	72	22.9	31.2	19.1	10.0	-2.2	3.0	3.2	6.8	6.2	19.7	27.2	15.1	38.9	69.4
Total Dividends Paid	\$277.7M paid to Crown Investments Corporation (Investment Saskatchewan)																		
Share of Sales Proceeds	\$816.9M paid to Investment Saskatchewan																		
SK Initial Investment	\$68.5M																		

Source: CIC Annual Reports 1990-2000.

phosphates.⁵⁴ Mosaic planned to use the proceeds of the sale to contribute to expanding its potash mining capacity in Saskatchewan by 5.1M tonnes over the next 12 years; which represented about an additional \$3B dollars in investment into the Saskatchewan potash sector.⁵⁵ On July 21, 2008 Yara International, a global supplier of mineral fertilizers headquartered in Oslo, Norway expressed interest in Saskferco and purchased the company by October 1, 2008.⁵⁶ The sale price was \$1.6B.⁵⁷

Yara acquired a world-class nitrogen manufacturing plant with storage facilities in Saskatchewan and Manitoba. Saskferco is still one of the world's most gas efficient producers of ammonia, urea and UAN (urea and ammonium nitrate solution) and its strategic location, in the middle of North America within easy trucking distance to markets in western Canada and being close to large and competitive gas reserves. At Saskferco's fiscal year end on May 31, 2008, it employed 150 employees and generated gross sales of \$505M with earnings before interest, tax, depreciation, and amortization (EBITDA) of \$202M.⁵⁸

Overall, the dividends paid out to the province between May 1990 and July 2008 was worth \$277.7M; in addition, the province received \$816.9M, which was 49% of the sale proceeds. The total nominal return, \$1.09B in cash and \$3B in additional investment into Saskatchewan's potash sector, resulted from an initial \$68.5M investment over 16 years.⁵⁹ The sale of Saskferco has been said to have been the most successful economic development project of the Grant Devine government.⁶⁰



"I can't be too critical of the investment being made at the time it was made. We're in a different time now, Government doesn't have to step up to partner with private enterprise in this province to attract investment ... so it is certainly a strategic time for us to get the taxpayer's' money back with a substantial profit... a new high profile investor for the province and further investment in our potash industry by Mosaic."

*- Lyle Stewart, Minister Investment Saskatchewan (CIC),
June 2008*

CALCULATING SASKATCHEWAN'S RETURN ON INVESTMENT (ROI)

“The investment in Saskferco has proved to be a very good one for the province of Saskatchewan ... and the taxpayers see a good return on the investment ... What are we doing with the money? Where are the profits going to go from the sale?”

- Deb Higgins, NDP MLA, June 2008

At the time of the sale of Saskferco, Lyle Stewart, Minister of Investment Saskatchewan, indicated that the profits from the sale were going to go towards reducing the provincial debt and towards building much needed infrastructure.⁶¹ However, MLA Deb Higgins question regarding the return on the investment in this company was never

answered: *How successful was the Saskferco project for Saskatchewan and what was the return on the investment?*

Return on Investment (ROI) is the most common performance measure used to evaluate an investment, especially when comparing it to other investment options. ROI measures the amount of money earned, or returned, on an investment relative to the cost of that investment. Calculating simple ROI is achieved by dividing the benefits received from the investment by the cost of the investment and expressing it as a percentage.⁶² Simply:

$$\text{Return on Investment} = \frac{\text{Gain from Investment} - \text{Cost from Investment}}{\text{Cost from Investment}}$$

“Gains from Investment” are the proceeds obtained from the sale of the investment whereas the “Cost of Investment” is the actual amount paid for the investment. The challenge in calculating an accurate

Table 3

Historical dividend scale interest rates, account return rates, CPI Index (1985-2014)

Year	London Life dividend scale interest rate (%)	London Life participating account return (%)	S&P / TSX Composite total return index (%)	Five-year GICs (%)	Government of Canada 5- to 10-yr. bonds (%)	Consumer Price Index (%)
1991	10.8	9.9	12.0	8.9	9.4	3.8
1992	10.7	8.7	-1.4	7.3	8.2	2.2
1993	9.7	8.5	32.6	6.2	7.2	1.7
1994	8.9	7.9	-0.2	7.3	8.3	0.2
1995	8.9	8.0	14.5	7.1	7.9	1.7
1996	8.9	7.9	28.4	5.6	6.9	2.2
1997	8.9	7.9	15.0	4.7	5.9	0.8
1998	8.9	7.9	-1.6	4.4	5.3	1.0
1999	8.9	7.6	31.7	4.8	5.6	2.6
2000	8.4	7.3	7.4	5.3	6.0	3.2
2001	8.4	7.0	-12.6	4.1	5.3	0.7
2002	8.4	6.7	-12.4	3.9	5.1	3.8
2003	8.4	7.5	26.7	3.1	4.5	2.1
2004	7.7	6.7	14.5	2.9	4.3	2.1
2005	7.2	6.7	24.1	2.7	3.9	2.1
2006	7.2	6.5	17.3	3.2	4.2	1.7
2007	7.2	6.2	9.8	3.3	4.3	2.4
2008	7.3	-0.3	-33.0	3.0	3.4	1.2
2009	7.3	8.7	35.1	1.9	2.8	1.3

Source: London Life <http://www.mwfg.ca/resources/content/d129.pdf>.

ROI arises in deciding on what were the actual gains received from the investment; that is, if the gains or costs of the investment occur over a time period this complicates the calculation. It is important to ensure that both the gains and costs are properly accounted for otherwise the measurement will be incorrect and the results of the calculation and its interpretation will be flawed. Common mistakes in calculating ROI often occur when stocks and leverage investments are involved.

Investments involving stocks generally fail to account for transaction costs; that is, the actual cost of buying or selling stocks, which will often inflate the ROI. Likewise failure to include all dividends that were paid will often deflate the ROI. Leverage Investments allow the initial investment to be multiplied many times over and can generate multiple returns. If the investment is over an extended period of time, then it is also advisable to discount the inflation rate in calculating the real ROI rather than a nominal ROI.

Therefore, a simplified calculation of the ROI on the Saskatchewan joint venture based on the original equity investment of \$68.5M made by the Saskatchewan government and receiving a total of \$277.7M in dividends plus \$816.9M on the sale, results in a simple nominal ROI for this investment of 1498%.

16 Yr. Return on Investment

$$= \frac{(\$277.7 \text{ million} + \$816.9 \text{ million}) - \$68.5 \text{ million}}{\$68.5 \text{ million}} = 1497.95\%$$

However, remember that the simple ROI may be inflated or deflated depending on how the gains and costs are accounted. In addition, by dividing the total gains by 16 years the average annual ROI on the investment is approximately 99.88% per year.

Average Annual Return on Investment

$$= \frac{(\$277.7 \text{ million} + \$816.9 \text{ million}) \div 16 \text{ Years}}{\$68.5 \text{ million}} = 99.88\%$$

Comparing this ROI to other investments we can see how well this investment performed. Using the dividend scale interest rates and the participating account return for London Life, S&P/TSX composite total return index, five-year GICs, Government of Canada 5-10 year bonds, and the consumer price index,⁶³ an annual return of 99.88% is quite exceptional especially considering the severe economic turmoil taking place during the 1980's and early 1990's.

Although a more comprehensive calculation of the ROI may provide a more accurate ROI, it appears that the "return on investment" to Saskatchewan taxpayers is one that most investors would envy.

ADDITIONAL GAINS TO CONSIDER

Saskferco was a joint venture initiated by the provincial government, while a typical private investment would only include the dividend and the proceeds of sale in its ROI calculation. As a public investment the external

benefits and cost should be considered as well. As listed in Table 4 there are at least 10 additional benefits that should also be considered with the gains that the Province received from this joint venture.

Table 4
Additional benefits of the Saskferco and Saskatchewan's joint venture are:
(1) the 2.8M person hours of employment generated to build the plant;
(2) the economic benefits of employing 15,350 tonnes of equipment during construction;
(3) economic benefits and taxes earned from employing between 130-150 people for 16 years;
(4) as a fully-taxable Canadian Corporation, the taxes the provincial government received;
(5) the factor income generated that contributing to Saskatchewan's GDP from wages, business profits and interest earned on 70% of the original cost which was debt financed;
(6) the market exposure and access Saskatchewan received throughout the World, in particular, spin offs for other industries in Saskatchewan;
(7) increases in economic activities in both trucking and rail transportation;
(8) the savings by Saskatchewan farmers unable to purchase domestic fertilizer and who paid high cost for imported fertilizer before Saskferco was built;
(9) revenues generated by SaskEnergy, when Saskferco used 18B cubic feet of natural gas a year, Saskferco is SaskEnergy's largest customer; and finally,
(10) the economic benefits derived from an additional \$3B investment in the Saskatchewan potash industry by the Mosaic Company.

CONCLUSION

Grant Devine and his PC government took office in 1982. At this time there was a fundamental turning point in the economic life of Saskatchewan. The new government made a commitment to pursue policies that resulted in the economic betterment of all citizens through diversification and privatization. Pursuing a joint venture with Cargill and building the largest nitrogen fertilizer plant in North America has proven to have fulfilled the commitment made by the Devine government. Despite the negative economic downturns over the next few years, and the large external shocks to Saskatchewan's economy during the 1980's and 1990's, Saskferco remained profitable. With a retrospective view, it is clear that this decision placed Saskatchewan in the forefront, enabled the province to capitalize on its abundant resources and diversify its economy. Saskferco is a truly remarkable story of investment choice in Saskatchewan's history.

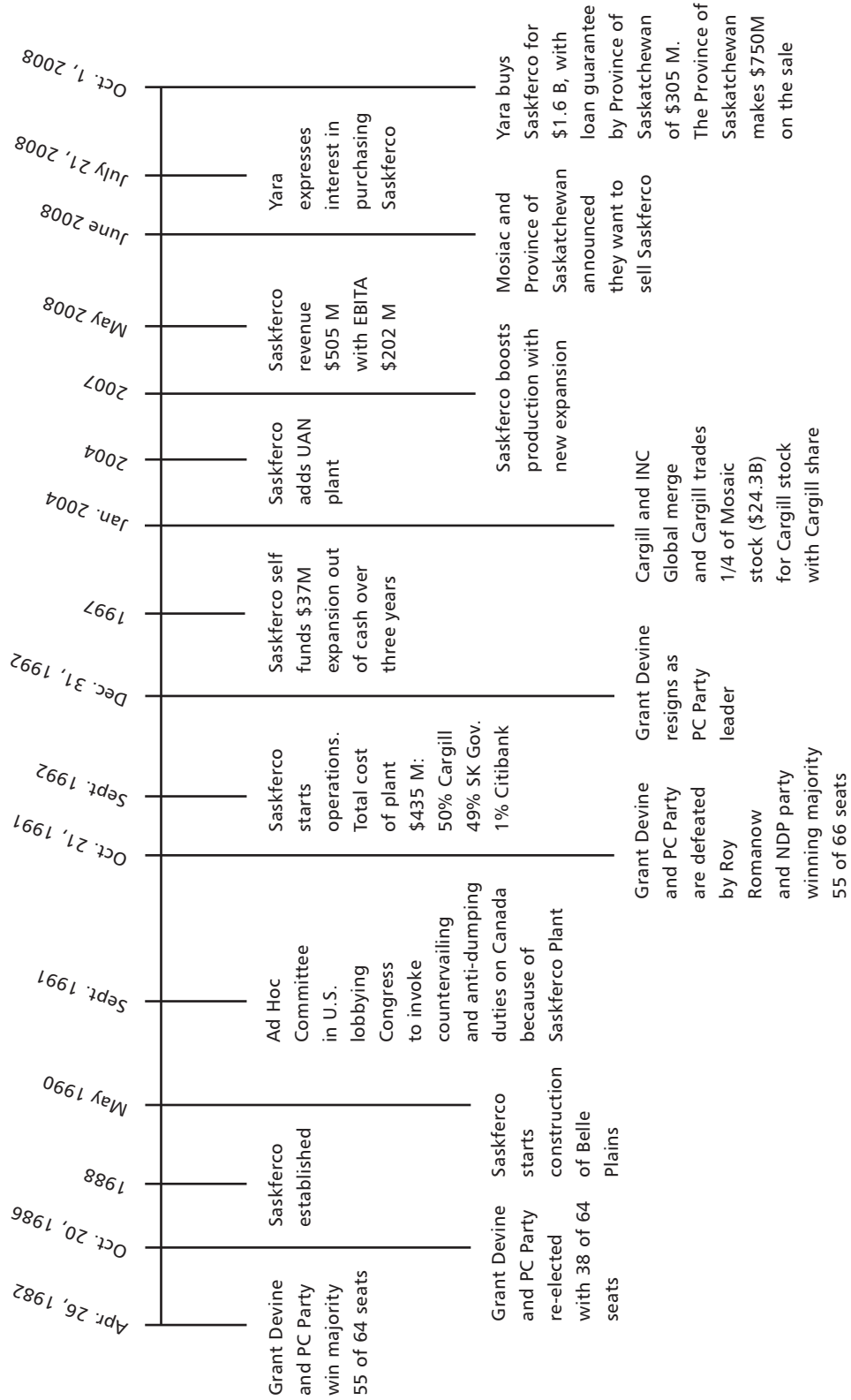


“The world is experiencing rapid and extensive changes which will require a fundamental re-examination of the economic opportunities and choices facing all of us. New trading arrangements, which we thought impossible just a few years ago, are emerging. Western Europe is gearing up towards 1992, the East Bloc is seeking radical changes in their economic and political structures and the Pacific Rim is now a major trading area with exceptional economic growth. Closer to home, the Free Trade Agreement is now in place and the federal government is introducing major new long term measures including tax changes. The Saskatchewan economy must be positioned to meet these challenges.”

- Grant Devine, December 1989

Figure 14

Saskferco Timeline (1982-2008)



ENDNOTES

1. ROI (Simple) is the total nominal increase of the investment over time. IRR (Annual) is the annualized percentage return on the investment over the period of the investment. CAGR is a measure of growth over multiple periods.
2. Government of Saskatchewan. Saskatchewan Bureau of Statistics. *Economic Review 1981*. December 1981. Pg 16.
3. *Ibid.*, Pg 15.
4. *Ibid.*, Pg 17.
5. *Ibid.*
6. *Ibid.*
7. Gross fixed capital formation (GFCF) is net investment and is used in calculating GDP. GFCF measures the net increase in fixed capital which includes: spending on land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; the construction of roads, railways, private residential dwellings, and commercial and industrial buildings. Disposal of fixed assets is subtracted from the total which results in the net increase in physical assets (investment minus disposals) within a specific measurement period. GFCF is reported in two broad categories: Government investment and Business investment, both include residential and non-residential construction and machinery and equipment.
8. Government of Saskatchewan. Saskatchewan Bureau of Statistics. *Economic Review 1990*. December 1990. Pg 6.
9. *Ibid.*, Pg 16-17.
10. *Ibid.*, *Economic Review 1985*. December 1985. Pg 7.
11. *Ibid.*, *Economic Review 1986*. December 1986. Pg 5.
12. *Ibid.*, *Economic Review 1981*. December 1981. Pg 11.
13. *Ibid.*, *Economic Review 1990*. December 1990. Pg 16-17.
14. *Ibid.*, *Economic Review 1981*. December 1981. Pg 11.
15. *Ibid.*
16. *Ibid.*, *Economic Review 1985*. December 1985. Pg 7.
17. *Ibid.*, *Economic Review 1984*. December 1984. Pg 7.
18. *Ibid.*, *Economic Review 1982*. December 1982. Pg 5.
19. *Ibid.*, *Economic Review 1985*. December 1985. Pg 7.
20. *Ibid.*, *Economic Review 1981*. December 1981. Pg 16-17.
21. *Ibid.*, *Economic Review 1983*. December 1983. Pg 5.
22. *Ibid.*, *Economic Review 1990*. December 1990. Pg 5.
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27. *Ibid.*, December 1999. Pg 1.
28. Yara International. *Yara Fertilizer Industry Handbook*. February 2014, Pg 4.
29. *Ibid.*
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35. *Saskferco Products Inc. v. The Queen*, 2007 TCC 462. CanLII. <http://canlii.ca/t/1skjh> (accessed March 15, 2017).
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37. Crown Investments Corporation of Saskatchewan. 1992 Annual Report. Pg 17.
38. Fertilizer International. "Saskferco comes alive to meet economic needs." *Nitrogen* July-Aug. 1993: 19+. Business Insights: Essentials. <http://bi.galegroup.com/essentials/article/GALE%7CA14412433?u=mtroyalc> (accessed March 15, 2017).
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