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Masters in Management Finance and Investments Research Proposal

By Zoliswa Mkwetshana (0616298P)

Financial Implications of the Nationalization of Land on Household Disposable Income In South Africa

Supervisor: Professor Christopher Malikane

ABSTRACT

This research studies the financial effects of land nationalization on household disposable income in South Africa. The paper reviews the financial effects of land reforms in selected Asian, African, European and North American countries.

The paper will test the effect of weaker collateral provided to lenders as a result of nationalizing of land. The dependent variable selected to test the financial effect of weaker collateral provided by households in South Africa is the credit risk premium charged by lenders on mortgage bond debt. The effect on household disposable income is calculate using the incremental credit risk premium which would be levied by lenders in the case of land nationalization. The paper covers data from 1975 to 2019 where available. The paper used an empirical model to run multiple regression using ordinary least squares. The independent variables utilized include household debt to residential property price; foreign exchange rate, gross domestic product growth and inflation.

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DECLARATION

I Zoliswa Mkwetshana declare this master's thesis is submitted as part of the requirements of the Masters' In Management Finance and Investments. I declare this thesis has never been submitted to any other institution and I acknowledge this is my own work. I have received authorization from the University of Witwatersrand to carry out this research.

Contents

1. Introduction

Land ownership and control of the use of land is an important determinant of economic performance. A significant number of countries that were once under colonial rule adopted land reform policies as a starting point of their post-colonial development process. The '8 East Asian Economies (Hong Kong, Thailand Indonesia, Japan, the Republic of Korea, Malaysia, Singapore, Taiwan and China)' referred to by Stiglitz (1996) as the Asian Miracle are a prime example. According to Stiglitz (1996) in the case of the Asian Growth Miracle rents were created and used to encourage growth, rather than adverse implication of creating rent seekers. According to Libecap (2018) access to property that is widespread results in higher levels of political stability. Aisen & Veiga (2013) similarly to Libecap (2018) found that in countries where land ownership is skewed and property rights are only available to the elites there tends to be political instability which has adverse effect on financial markets and restrains economic growth.

Land reform is significant for at least 3 reasons. According to Stiglitz (1996) land reforms had three effects: incremental rural productivity and income due to access of land and increased savings. Incremental productivity, income and savings lead to the development of financial markets. Households which have higher disposable incomes to invest in financial markets such as bonds and equities. Putzel (2000) found the redistribution of wealth resultant from land reforms contributed to political stability in East Asia. The reduction of political risk reduces financial and economic risk and results in higher asset prices. Deininger (2002) found that inappropriate land policies create limitations on economic development in developing countries. Inappropriate land policies lead to insecure tenure which limits investments and entrepreneurship opportunities. In line with the findings of Deininger et al (2008) countries with high levels of inequality like South Africa may realise gains from redistribution of key assets such as land.

In the South African context the issue of land reform has elicited divergent views and poses a threat to economic and financial mark stability. A significant number of South African households are heavily indebted. Data shows in the third quarter of 2019 72,6% of household disposable income is spent servicing household debt. These high levels of debt limits household savings and in turn limits the economic growth. The limited savings prevents a significant portion of households from participating in financial markets. A study by Meniago, et al (2013) found South African household debt increases in line with incremental house prices. Therefore a mechanism needs to be established that would weaken the movement in house prices from household debt. The benefit of such a mechanism should not be to stabilize household disposable incomes but it should also reduce overall household debt, so that households are better positioned to accumulate wealth.

In the South African case there is an ongoing debate regarding the need to address historical inequalities in land ownership. One view argues that land should be privately owned, and only de- racialization of land ownership should be undertaken within the framework of private property ownership. Those in support of private ownership of land claim that nationalization of land will collapse the banking system, because collateral will be weakened, and this in turn

would lead to the collapse of financial markets. Furthermore, because land backs mortgage assets in the banks' balance sheets, this view argues that the nationalization of land would worsen financial market imperfections by raising the risk premium payable on mortgage bonds. Those in support of continued private ownership of land also argue that land nationalization will disrupt agricultural production resulting in low growth rates and higher unemployment rates and it will result in capital flight.

Another view to address the current inequalities is that land in South Africa should be nationalized. Nationalization would ensure that land belongs to all South African citizens. Democratic South Africa is populated with high levels of inequality that are largely the result of a past unjust and oppressive system. Albeit South Africa has developed financial markets, in 2018 a paper titled "Overcoming Poverty and Inequality in South Africa An Assessment of Drivers, Constraints and Opportunities" issued by the World Bank rated the Republic of South Africa as the "most unequal country in the world. This paper argues continued private ownership of land would not adequately address social, economic and financial inequalities; because land ownership will still remain in the hands of the view whether they are black or white. Therefore the perspective the paper takes is the view that land should be owned by all South African citizens with the state acting as the custodian.

The gap that this paper seeks to fill is to investigate the impact of land nationalization on the household disposable income in South Africa. The paper argues that a reduction in mortgage loans outstanding due to nationalization of land should lead to decline in household debt to disposal income ratios. The financial implication impact of this would be to increase the capacity of households to accumulate financial wealth; and to effectively participate in financial markets. The benefit of this approach to land reform would take place if the expected increase in credit risk premium owing to weaker collateral, is more than counter balanced by the decrease in the payments for the right to use the land. It is this condition that this paper seeks to establish.

The paper is structured as follows: Section 2 reviews literature relating to land reforms and their effects on financial markets and the economy of the countries selected. Section 3 describes the methodology. Section 4 details the empirical analysis and Section 5 concludes on the findings from Section 4.

2. Literature review

2.1. The economic effects of land reforms selected some international evidence

The paragraphs below review land reforms in different parts of the world. A total of 13 countries have been reviewed namely South Kore, Malaysia, Taiwan, China, Singapore, India, Russia, Germany, Sweden, Canada, South Africa, Nigeria and Mozambique. The paper reviews land ownership patterns in both emerging and developed economies. World Bank and other economic and financial market data is then utilized to assess the economic standing and financial markets of the countries that adopted land reforms to ascertain if there is any

correlation between active financial markets and land reforms applied for the redistribution of wealth.

2.1.1. South Korea

South Korea implemented land reforms in the 1950's post-independence from Japan. According to Pak (1956) prior to the implementation of land reforms land was owned by the wealthy elites and farmers were renting from landlords. Land was acquired through the land reforms and was sold by Japanese owners in the open market pre-1945 independence at below market rates. In some instances land acquired by government through the Land Reform Amendment Act (ALRAA) of 1950 was paid for over a 10 year period. Joen (2000) states land prices were based on crop yields; and the ALRAA initially stated the previous land owners would be compensated over a 5 year period however this was extended to 8 years. The extension of the payment period resulted in the acquisition of land below market rates. According to Howard ownership of land by farmers increased from 13.8 % in 1945 to 69.5% in 1965. According to the South Korean procurement office in 2019 the South Korean government further nationalized land worth US$73.7 million in 2019 that was registered under Japanese names.

The World Bank states the Korean government policies led to an average GDP growth of 10% from 1962 to 1994. The average GDP growth rate from 1961 to 2018 is an impressive 7.35%. High levels of growth decreased unemployment rates from 7.5% in the 1960's to currently approximately 3.7%. According to the World Bank South Korea is now the 15th largest economy in the world. Joen (2000) found land reforms is South Korea increased agricultural production and had a positive effect on economic growth. According to De Guzman (2019), even though the South Korean housing markets have significant intervention from government they are active. South Korea has low interest rate, as of March 2020 the central bank of South Korea levies interest at 0,75%.

South Korea has developed financial markets including capital markets, money markets, foreign exchange markets and financial derivative markets. According to Yoon (1989) the development of South Korean financial markets commenced while South Korea was still colonized by the Japanese (1910 to 1945). Post-independence there was significant economic growth in South Korea due to various economic and other policies applied by the government including land reforms. South Korea experience exponential economic growth which lead to the further development of financial markets. According to the World Bank in 2018 South Korea's domestic stock market capitalization to GDP is 87,3% which surpasses the world average of 70,95% of GDP. Additionally it is said the bond market in South Korea is one of the largest in Asia. South Korean government bonds include treasury bonds, National Housing Bonds and Seoul Metropolitan Subway Bonds.

2.1.2. Malaysia

According to a study by Voon (1978) in the Malaysian Peninsular 80% of the land pre-independence was owned by foreigners. 29% of the land was owned by Europeans, 42% owned by Chinese, 9% by companies and 16% was owned by Malaysians. Title deeds were

utilized to calculate the ownership spilt. Shortly before independence from British rule in 1956, through the Land Development Act 1956 Malaysia founded the Federal Land Development Authority (FEDLA); to address land tenure insecurity. Barau & Salisu (2009) found the program established to address land tenure received technical and financial support from the World Bank. The establishment of FELDA enabled the Malaysian government to effect land reforms that would transfer ownership of land from foreign nationals to Malaysian citizens.

Aziz et al (2012) findings indicate in modern day Malaysia FELDA is the biggest owner of plantations. FELDA assigns land to rurals to facilitate economic participation through various means of production such as rubber or oil palms cultivation. According to Aziz et al (2012) start-up costs are funded through loans provided by FELDA. The loans are payable over a 15 year tenure through revenues generated from working the land. At inception of the FELDA programmes land was owned through co-operatives, land is now privately owned by citizens. Citizens are not permitted to sell the land without FELDA approval, additionally once land has been allocated to a citizen they need to live and work on the land. Albeit Malaysian land can be privately owned there remains significant government intervention.

Malaysia's economy grew by an average GDP growth rate 6.5% from 1957 to 2005. Malaysia is one of Asia's best performing economies as a result of various government policies, including FELDA. In 2018 the GDP growth rate was 4.7%. The World Bank only provides unemployment data for Malaysia from 1991 to 2018, unemployment rates have slightly increased from 3.36% to 3.59%. As of March 2020 the Malaysian central interest rate is levied at 2,5% which enables affordable borrowing rates from commercial banks. According to the World Bank FDI inflows in Malaysia peaked at 5.27% of GDP in 2007, as of 2018 FDI is 1.39% of GDP. A study done by Fadhil & Almsafir (2014) empirically analysing data from 1975 to 2010 confirmed the causality between inward FDI and economic growth in Malaysia. Similarly Omer & Yao (2011) found through empirical analysis of annual data for the 38 year period (1970 to 2008), causality between inward FDI and economic growth

Due to effective economic policies Malaysia has active financial markets. According to Nordin et al (2016) the high levels of FDI contribute to the growth of Malaysian stock market. The World Bank states in 2018 Malaysia's domestic stock market capitalization to GDP is 111% of the country's GDP. This is a further indication of active financial markets albeit government holds significant intervention in the ownership of land. According to Randhawa (2011) the Malaysian government played a noticeable role in the directing investment post-independence. The president of the Financial Market Association of Malaysia (FMAM) Mr. Wie was quoted in a local Malaysian newspaper stating Malaysian markets have sufficient liquidity required to fulfil stakeholder needs. The bond market in Malaysia is also active and attracts foreign investments.

2.1.3. Taiwan

In 1948 before the land reforms were implemented in Taiwan, it is said only 56% of agricultural land was used by its owners. Chen (1994) found post implementation of the expropriation law, in 1953 private use of land increased to 85% and ownership increased to

52%. According to Gallin (1963) the expropriation law "The Land- to- the-Tiller Act" was introduced in 1953, the law contributed to the alteration of the land ownership structure in Taiwan. You (2005) states the act limited and rents to 37.5% from a maximum of 60%.Successful land reforms in Taiwan lowered the levels of inequality.

Taiwan's economy on average has been growing for the past two decades from 1991 till 2018. Taiwan's average GDP rates were 4.62% the average unemployment rate from 1978 to 2017 is only 3.8% (National Statistics Republic of China Taiwan). According to Sarkar and Lai (2019) foreign investments played an important role in the Taiwan's economic development. As at March 2020 the central bank of Taiwan's interest rate are low at 1.125%, low interest are expected to stimulate further economic growth. According to stats from the United Nations Taiwan attracts healthy levels of FDI, in 2018 Taiwan attracted FDI inflows amounting to 1% of GDP.

According to Chuang and Hölscher (2008) Taiwan's financial system is liberalized and was transformed from a state bank system. Taiwan's financial markets are active albeit they are still developing. Taiwan has numerous financial instruments including equities, bonds, exchange traded funds (ETFs) that are trade in the Taiwan Stock Exchange (TWSE). . Taiwan also has active property markets and property sales have increased by 17% from July 2018 till July 2019 (.globalpropertyguide., 2019)

2.1.4. China

China has implemented various land reform policies since the country gained independence in 1949. In 1950 following the 1949 liberation of the Republic of China, the government introduced a Land Reform Law that abolished ownership of land by landlords and introduced peasant landownership (china.org.cn, 2009). According to Bramall (2004) in the mid-1950's China implemented another land reform promoting collectivization. Land in urban areas was owned by the state and rural land owned by a collective. Ding (2002) found these ownership structures still persists today. Chinese have property rights and rights to utilize the land through long term leases but land is state owned. According to Swinnen (2002) clear property rights to individual land plots in China was a key contributor to the growth in agricultural output and productivity. To attract FDI the state established special economic development zones (SEDZs) in the early 1980s, and the land rights system which grants foreigners right of use for specified periods. In 1986 a Land Administration Law was passed in China that permits the state to sell land rights use to individuals and this legislation assisted with the creating the land market that exists in China today.

Land reforms and other policies have led to exceptional GDP growth levels for China. According the World Bank the average GDP growth rate in China was 8.18% from 1961 to 2018. China is also one of the leading recipients of FDI in the developing world. Data from the World Bank reflects China received FDI inflows equivalent to 1.5% of GDP in 2018. Due to consistent economic growth and effective economic policies China has a low unemployment rate. In accordance with the World Bank the current unemployment rate in China is only 4.4 %. China's average saving rate averaged 27.47% from 1981 till 2017, it peaked in 2007 at 33.8% and it was 22.67 in 2017 (World Bank).

According to Ding & Zhong (2020) the Chinese financial markets developed promptly. Rapid development of China's financial markets were the result of effective reforms. As per China Banking and Insurance Regulatory Commission (CBIRC) in March 2019 China had the largest banking system globally. In 2018 China's market capitalization of domestic equities was 46,48% of GDP, as published by the World Bank. Chinese financial markets include various instruments including equities and bonds. The Chinese financial markets are liquid and attract foreign investors even though there are limitations that apply to foreign ownership of resources. China's property markets are active albeit corporations are granted use of property by the state rather than ultimate ownership. As of March 2020 China's central bank interest rates are 2.5%.

2.1.5. Singapore

According to Kim & Phang (2013) and Helble & Phang (2016) in 1963 Singapore joined the Federation of Malaysia and in 1965 it withdrew from Malaysia and became an independent state. Post-independence Singapore required land for development of the state and to provide housing to the citizens of the island. The Land Acquisition Act of 1966 gave the government authority to acquire land on a compulsory basis from private owners provided the land would be utilized for public development. Phang (1996) (2013) states the Land Acquisition Act was amended in 1973 to limit the cost of land to the lower of market value as at 30 November 1973 or when the act was gazetted. According to Helble & Phang (2016) as of 2007 Singapore's parliament removed the limitation on the cost of land acquired by the government. Phang (1996) and Helble & Phang (2016) found land reforms in Singapore aided with economic development of the country. The land reforms contributed to lower costs of the development of industrial estates, the financial district, commercial developments, public housing program, and public sector infrastructure development. According to the Singapore Land Authority (SLA) more than 3 quarters of the land in Singapore is now owned by the State.

According to United Nations Conference on Trade and Development's World Investment Report 2018, Singapore was the fifth largest recipient of FDI inflows in the world in 2017. As reported by the World Bank from 1970 to 2018 FDI capital inflows in Singapore averaged 12.09% of GDP. Phang (1996) states the Economic Development Board was established in 1961 to facilitate foreign direct investment (FDI) in the manufacturing sector. From 1971 to 2018 Singapore has seen an average GDP growth rate of 7.2% which peaked at 14% in 2010. For approximately 8 years from 1965 till 1972 Singapore experienced double digit GDP growth rates. According to Zhou (2019) the high GDP growth rates were due to favourable investment conditions and the rapid expansion of the world economy. Investment conditions in Singapore are considered favourable even though the government owns more the 75% of the land. As of March 2020 Monetary Authority of Singapore (MAS) which is Singapore's central bank, their interest rate is 1.25%.

According to Lee and Phoon (2014) is one of the leading financial centres in the world and government played a significant role in nurturing the development of the financial markets. Lee and Phoon (2014) found in 2014 Singapore was the largest foreign exchange trading centre in Asia. As of 2019 Singapore foreign exchange activity is the third in the world.

According to the World Bank the market capitalization of listed domestic companies in Singapore is 188% of GDP. According to Chow-Tan (2019) Singapore's bond market attracts a diverse range of international and domestic bond issues. Singapore has active property markets as citizens in Singapore save at least 20% of their earnings due to the compulsory savings scheme; the Central Provident Fund (CPF). CPF funds are utilized to pay for housing. According to Helble & Phang (2016) the high savings rates result in high home ownership rates of 91.5%.

2.1.6. India

In pre-colonial India land ownership was both communal ownership and private ownership. Meena (2015) established that under British rule sole proprietary ownership rights where introduced and most customary law was no longer recognised. As stated by Nagarajan, Deininge, & Songqing (2008) and Roy (2011) after independence the Indian government adopted various types of land reforms namely secure tenancy, abolition of intermediaries, ceiling on land holdings and consolidation of disparate land holdings. According to Nagarajan et al (2008) and Besleyet al (2015) in 1949 the Indian Constitution declared land reform to be a state subject, states where given authority to administer land reforms, ceiling and tenancy laws together resulted in the redistribution of approximately 10% arable land. Due to the states, who were custodians of the redistribution of land in India, the reforms were ineffective and progressed slowly. According to Besley et al (2015) tenancy was the most effective type of reform albeit there were some challenges encountered even with tenancy. Besley et al (2015) found that tenancy reforms in India produced "significant and persistent shifts in land distribution and a fall in overall inequality in landholdings". As per their research Besley, Leight et al (2015) the benefits favoured relatively wealthy tenants, which counters equality which is one of the goals of land reforms. Nirmal (2016) also advocates that land reforms in India where successful.

As reported by the World Bank from 1961 to 2018 India's GDP has grown by an average of 5.26%, peaking at 9.62% in 1988. As stated by Deininger et al (2008) land reform is a contributor to economic growth in India. Venkatesan (2018) found the agricultural sector which is one of the key industries affected by land reform and has contributed an average of 28.58% to India's GDP from 1950 till 2019 (Sector-wise contribution of GDP of India, 2019). According to the World Bank in 2017, India received net inflows of FDI which are 1.51%of GDP. India is one of only four emerging economies which are part of the top 25 recipients of FDI globally. According to Dr Venkatesan (2018) India's liberal polies contribute to the FDI inflows. The average unemployment rate in India from 1991 till 2018 is 2.67%. According to the World Bank the unemployment rate peaked at 3.18% in 2003 and in 2019 the unemployment rate was only 2.55% which is lower than the global unemployment rate of 4.94%

India is a considered one of the largest emerging market. According to the World Bank in 2018 India's listed domestic equities were 76,63% of GDP. According to Senthilkumar (2017) the Reserve Bank of India (RBI) through economic policy reforms is shaping the financial markets. Senthilkumar (2017) found money, foreign exchange, government securities, and equity markets in India are developed and liquid. According to Nirmal (2016) land reforms in

India contributed to activating land markets. Nirmal (2016) states there is empirical evidence land market activity picked up after the land reforms were implemented in India. The RBI has fixed India's repo rate at 5, 15% which is higher than comparable emerging market China. The higher RBI's interest rate does not have a negative impact on India's financial markets.

2.1.7. Russia

Until the Russian revolutions against autocracy in the early 20th century Russia's land was owned by the Czar. According to Limonov (2002) in 1906 the Stolypin reforms led to private ownership of land through land tenure regulations, a peasants' land bank and a resettlement policy. Swinnen (2002) and Lermana & Shagaidab (2007) states after the revolutions of 1917, private ownership of land was abolished and the land in Russia was nationalized. Collective farming on state owned farms prevailed during the Soviet times in Russia. According to Wegren (1998) and Limonov (2002) in 1990 the Russia constitution re-introduced private ownership of land. Limonov (2002) found albeit the privatization process was initiated in 1996 implementation was delayed due to government overruling prices determined by local administrators as they were perceived to be too low. "

Lermana & Shagaidab (2007) and Trukhachev et al (2015) found land reforms that lead to privatization of land in Russia was enacted to improve productivity and efficiency of agricultural land. According to Rolfes (2002) in addition to improving productivity the main point of land reform was to provide citizens with an economic asset to increase household incomes and contribute to economic development of the country. Trukhachev et al (2015) state private property in agricultural land is yet to be established in Russia. Majority of agricultural land in Russia is leased by large enterprises. According to Visser et al (2014) the enterprises are still the same "kolkhozes" and "sovkhozes", which used to be the state collective farms when Russia was part of the Soviet Union.

The World Bank reports the average GDP growth rate is Russia from 1990 to 2018 is only 0.78%. In 2018 the Russia's GDP grew by 2.8% and has been on a growth trajectory since 2016. The average unemployment rate in Russia over 25 years (1992 to 2017) is 7.23% with the unemployment rate in 2017 at 5.21% (World Bank) which is lower than comparable emerging economies like RSA and Brazil. According to Becker (2019) Russia receives significantly less FDI for an economy its size. The average FDI inflows as a percentage of GDP in Russia from 1992 to 2018 is 1.78%. Russia only received capital FDI inflows of 0.53% of GDP in 2018. Unlike fellow BRICS countries India and China land reform in Russia has not been a significant contributor to economic development. Land reform in Russia was not effectively implemented and literature shows land markets in Russia are still underdeveloped

Russia's market capitalization of listed domestic equities is only 34,76% of GDP (World Bank). According to Rubtsov (2013) Russia's stock market is one of the most volatile stock markets globally. Rubtsov (2013) findings state Russia's corporate bond market is 13 times lower than the world's average. According to Mirkin et al (2013) Russia's financial markets don't have the financial depth present in fellow BRIC nations Brazil, China and India. Similar to fellow BRIC nations Russia also has active fixed income markets which include government bonds. According to Lerman and Shagaida (2007) Russia had virtually no land markets during the Soviet era. Post the Soviet era land markets in Russia include lease markets

and buying and selling of land. Lerman and Shagaida (2007) state Russian law now permits for the trading of land which has a positive influence on the land markets. In March 2020 the Central Bank of the Russian Federation repo rate is 6% which is higher than comparable emerging markets India and China.

2.1.8. Germany

According to Muller (1964) the first land reforms in Germany took place in first half of the 19th century, land was originally owned by rich nobles and peasants leased the land from the nobles. Muller (1964) findings indicate in 1945 communist land reforms resulted in in the establishment of publicly owned estates and collective farms. According to Scheafer (2017) the land reforms in 1945 to 1946 intended to break up large estates and divide the land into smaller plots. Deutsch (2005) highlights land was expropriated to minimize the power of landowners and to secure the food supply. The land reforms of 1951, 1975 and 1988 assigned state owned land to third parties on condition the land would be utilised for agricultural purposes. On the 16 March 1990 the Modrow Law stopped all restriction on land acquired as a result of land reform and the land became owners' complete property.

According to the World Bank the average GDP growth in Germany from 1971 to 2018 is 2%. This is slightly lower than the fellow 6 G7 countries as their average GDP growth rate is above 2.3%. Agriculture is however only contributed 0.78 percent towards GDP in 2017 (Statista.com). Key contributors to the German economy are industry and the services sector which make up more than 85% of GDP. Similarly to most developed economies Germany has a low level of unemployment, as of July 2019 the unemployment rate is 3.1% which is lower than comparable countries like France and the United States with unemployment levels of 8.7% and 3.7% respectively. A study done by Swinnen and Mathijs (2001) on the effect of land reforms on productivity of agriculture in the former East Germany found that the land reforms resulted in efficiencies only in certain types of farming. In addition the results of the study found the efficiency was only realized at the inception of the transition from state owned farms to private family owned farms. Data from 1991 to 1995 was tested.

Germany's financial markets are among the most developed globally as Germany is one of the largest economies in the world. Germany's financial markets are bank based with firms relying more on bank financing instead of capital markets. According to the World Bank Germany's market capitalization of listed domestic equities is 44,46% of GDP as of 2018. Germany has negative interest rates which further boosts economic activity. Since the unification of the former East and West Germany, the country now has active land markets. Mortgage bond rates are also negative which increases lending and contributes to active financial markets.

2.1.9. Sweden

Until the 16th century land in Sweden was owned by the church; the crown then confiscated the church lands in the 16th century. In Sweden nobles could own land but ordinary farmers (peasants) only had right of use of the land and paid taxes to the crown or nobles in the form of labour or crops. According to Pettersson (1948) in 1789 the crown granted peasant farms rights to own and sell their land. Helmfrid (1961) states Swedish land reform in the 18th century was developed with the intent of redistributing highly parcelled land and disbanding village. Sweden had three main land reforms. The first was the Storskifte which commenced

in 1757, this land reform lead to the consolidation of strips of land. Then Enskiftet followed in 1803 which lead to the reshape of agricultural land. The aim was to "provide each holding with just one block of land." The third reform commenced in 1827 the Laga skifte which aimed to adjust land division. According to Skalo et al (2012) land reforms in Sweden have been very effective.

According to the World Bank the average GDP growth rate in Sweden was 2.57% from 1961 till 2018. In 2018 Sweden achieved a GDP growth of 2.22%.Agriculture contributes about 1.07% to GDP and 22.18% comes from the industry with the chunk of GDP coming from the service sector 65.19% in 2017. For a developed country Sweden has a higher unemployment rate which was 7.1% as at September 2019. According to the World Bank from 1970 till 2018 the net average FDI inflows are 2.55% of GDP, this affirms Sweden has active markets and can attract investment which contributes to economic growth.

Sweden is a developed country with active financial markets. According to the World Bank the market capitalization of Sweden's listed domestic equities was 92,8% of GDP in 2012. According to Ingves & Lind (2008) the Swedish financial system highly restricted for more than 20 years and is now more liberal and has a positive effect on the economy. As of March 2020 the Sweden's central bank has a repo rate of 0% to support economic growth as Swedish households are heavily indebted and their disposal income is therefore sensitive to changes in the interest rates. Although Sweden has active mortgage markets the country has a housing shortage due to various factors including limits of how much people can borrow from the bank (The Local Sweden, 2019).

2.1.10. Canada

According Usher (1992) in Pre-Colonial Canada the land was owned and governed by the aboriginal peoples. Slattery (1987) and Usher (1992) found the British crown through sovereignty expropriated the aboriginal title and rights in Canadian land. In 1670 the then King of England expropriated the interior region of Canada as trading monopoly Hudson's Bay Company (HBC) and this was known as Ruperts land. From 1850 the British crown entered into various treaties with the First Nations Canadian chiefs for the transfer of land and their rights to use land to the British Monarch. According to Usher (1992) land was acquired at a cost from the indigenous Canadians as part of the treaties. Natcher et al (2009) found land claims and treaties are assisting Aboriginal peoples regain their land in Canada.

From 1962 to 2018 the average GDP growth rate in Canada is 3.3% which is slightly higher than other developed economies. According to the World Bank as at March 2018 GDP growth in Canada was 1,9% which is slightly lower that the global GDP growth rate of 2,97%. It is said that real estate is one of the leading contributors to Canada's GDP. The unemployment rate is only 5.79% which is in line with expectations of a developed economy. According to the World Bank in 2018 FDI was 2.7% of GDP this signifies investor confidence and positively contributes to positive GDP growth. The World Bank data shows Canada has received an average of 2,31% of GDP as FDI over a 49 (1970 to 2018)

Canada's market capitalization of domestic listed companies was 113% of the country's GDP in 2018 according to the World Bank. According to the Bank of Canada Canadian financial markets include money markets, bonds, equities, derivatives and foreign exchange. Canada is

an advanced economy and according to Gao et al (2018) government debt securities play an important role in Canada's financial system and monetary and fiscal policy. Canadian debt securities include foreign dominated notes. According to the Bank of Canada, Canadian markets are liquid and this is further support of how developed the Canadian markets are. As of March 2020 the central bank of Canada cut interest rates to 0,75%. Interest rates in Canada are low as is expected for a developed economy with active financial markets.

2.1.11. South Africa

According to du Plessis (2011) before colonization South African land was owned by the indigenous people of the republic. du Plessis (2011) states land tenure was both communal and independent. The arrival of European settlers in South Africa lead to the indigenous people of South Africa losing their right and ownership of large parcels of the land. Initially indigenous South Africans were disposed of their land through war and later discriminatory legislations. de Wet (1994) and Christoper (1991) found legislation like the 1913 Natives Land Act, 1936 Native Trust and Land Act and the Group Areas Act enabled the government to take away land from black South African. According to de Wet (1994) the 1913 Natives Land Act was 'designed to stamp out all forms of independent black tenancy'. Netshipale et al (2017) found as a result of the Native Land Act the native people of South Africa to occupy only 13% of the country's Land.

The Group Areas Act of 1950 ensured the separation of racial groups. Black, Coloured, Indian and Asian people were resettled to areas further from the city centre and had less land available to them versus their white counterparts. Even in modern day South Africa the white population still owns majority of the land. The land audit report published by the Department of Rural Development and Land Reform (DRDLR), in February 2018 shows that 72% of individually owned farmland is owned by white South Africans. Coloureds own 15%, Indians 4% and Africans own 3%. In the 1980's with the introduction of coloured and Indians to the South African Parliament the Group Areas Act was amended resulting in grey areas. According to Christoper (1991) these areas permitted for certain multiracial cohabitation. According to Netshipale et al (2017) in 1994 various initiatives including land reforms were adopted by the democratic government for the benefit of those that were marginalised during the apartheid era.

According to Cousins (2016) the early objectives of land reform were to address the injustice of the past political system. The South African land reforms were also intended to reduce poverty and foster economic growth. Cousin (2016) found the land reforms were also adopted to distribute land more equally and to provide security of tenure. The South African Government has adopted a willing seller willing buyer as the principle of the land reforms. To date the South African government has been compensating land owners at market related costs for land that is redistributed, this has led to exorbitant costs incurred by government through the land reform process and as a result redistribution of land has been slow and ineffective and costly.

Dawood (2019) found 3 land reform programmes are being implemented by the South African government namely, land restitution, land redistributions and land tenure reform. Land restitution aims to return land or to provide alternative land or monetary compensation to individuals who were displaced through racially discriminating laws and practices. The intent

of land redistribution is to resolve the inequality in ownership of land by redistributing land from the minority to the previously disadvantaged majority. Land tenure reform aims to secure rights of those who are already occupying land with insecure occupation rights. South Africa's target was to redistribute 24.6 million hectares to the previously disadvantage. According to Netshipale et al (2017) the land is South Africa is still in the hands of the minority with approximately 82 million hectares privately owned by commercial farmers (people of European descent).

In the last 25 years land reform in South Africa has failed to yield the required impact. Land ownership is still heavily skewed, with the minority controlling a fast majority of the land. Cousins (2016) research found land reform is South Africa has been a costly process, failing to create the required number of jobs and has not provided access to markets. A report commission in 2013 by the South African presidency revealed land reform is bias towards the elite. Six provinces were assessed, the results found an average of approximately R3.6 million was spent per project, approximately R520 000 per beneficiary at a cost of R645 000 per job. Challenges faced by the South African government include, lack in post-settlement, slow pace and cumbersome processed applied by the government. The high costs of paying a "fair" amount for land which is to be redistribute

South Africa is an emerging economy and is a member of the BRICS group. According to the World Bank the average GDP growth rate is South Africa from 1961 till 2018 is only 2.99%. At below 3% average GDP growth rate South Africa is lower than comparable developing countries like China (average GDP growth rate 8.18%) and India (average GDP growth rate 5.26%). South Africa also has high unemployment rate with the latest unemployment peaking at 29%. South Africa does not attract sufficient FDI to increase the average GDP growth, as of 2018 total FDI inflows were only 1.49% of GDP.

South Africa unlike most African countries has active financial markets with equity, debt markets, foreign currency and derivative markets. According to Hassan (2013) the South African bond, currency and derivative markets fall in the top twenty by turnover globally. South Africa's stock market the Johannesburg Stock Exchange (JSE) is also the largest stock exchange in Africa. According to the JSE more than half of the debt listed on the Bond Exchange of South Africa is listed by the South African government, the South African Bond market is liquid and attracts international investors. Even though South Africa has developed and liquid financial markets South Africa has high interest rates. According to the South African Reserve Bank as of March 2020 the repo rate is 6,25% which is considerably higher than fellow BRICS countries and negatively affects the activity of mortgage bond markets.

2.1.12. Nigeria

According to Namnso & Adoga (2014) in pre-colonial times Nigeria had a communal land ownership structure, land was owned by families, communities, chiefs and traditional rulers. Land owned by the community was monitored and supervised by the chiefs and traditional rulers. During British various legislation including Treaty of Cession 1861, Land Proclamation Ordinance 1900, Land and Native Rights Act 1916, and Native lands Acquisition Act 1917 among others was introduced. As a result of The Treaty Cession there was transfer of ownership of significant land to the British crown. According to Namnso and Adoga (2014) the laws "were implemented to eliminate the pre-colonial land tenure system

in the country and facilitate private ownership of land". According Mabogunje (2010) in northern Nigeria all lands were under the control and subject to the disposition of the Governor appointed by the British. All valid land titles were issued by the Governor, the Governor was entitled to charge rental and grant rights of occupancy as he saw fit. In southern Nigeria some land was still owned by families and individuals only had right of use.

Two key legislation regarding ownership of land have been adopted since Nigerian independence namely the Land Tenure Law of 1962 and the Land Use Act of 1978. The Land Use Act resulted in the nationalization of land, the act permits the right of use through long term lease agreements with a tenure of up to 99 years. According to Mabogunje (2010) The Land Use Act gives authority to the Governors to issue certificates of occupancy for land holders in their states. According to Namnso and Adoga (2014) The Land Use Act has adversely affected economic growth in Nigeria, further individual ownership of land is at 23% as a result of the act. The Land Use Act is affected by misadministration and abuse of power by the trustees of the act specifically the governors and local government chairmen. They have the power to revoke rights of occupancy over land "for overriding public interest". According to Emeka et al (2017) occupancy rights have been revoked arbitrarily and underscore the fragility of rights conferred.

According to Mabogunje (2010) in 2009 the Nigerian government appointed a technical committee to undertake the reform of the land tenure. Emeka, Famobuwa, & Iroechenwu (2017) state the technical committee was appointed in response to the adverse effects of the current Land Use Act of 1978. The Land Use Act had an adverse effect an increased the uncertainties in title to land. Nigeria is now proposing land reform that will result in the amendment of the clause giving the Governor authority to approve mortgage transactions and assignment of land in the Land Use Act. The proposed reform will assist with the validity of land occupancy certificated and promote active land markets in Nigeria.

The average GDP growth rate in Nigeria from 1961 till 2018 is only 3,8%. Nigeria is a developing economy and is the GDP growth rate is lagging far behind developing countries on the Asian continent. With countries like China, Korea, India and Malaysia achieving average GDP growth rates of above 5% in the same period. The issues of valid occupancy certificates in turn have a negative effect on the ability to raise credit utilizing land as collateral. Foreign direct investment in Nigeria as a percentage of GDP is rather low averaging 1.6% from 1970 to 2018. This further indicates lack of confidence in the Nigerian economy and is hindrance to economic growth. The Nigerian unemployment rate is very high at 23.1%.

According to Ehigiamusoe (2012) financial markets in Nigeria are not as developed and as competitive as other comparable emerging economies. Albeit Nigeria has bond and equity markets they are under developed and do not have a positive impact on economic growth. Ehigiamusoe (2012) further states the Nigerian financial markets are volatile and are highly dependent on government. According to the World Bank Nigeria's domestic equity were only 7.93% of GDP in 2018, this is a further indication Nigeria does not have active markets. As the worlds average of domestic equities is 92.94% of GDP. Nigeria does not have active land markets due to the issues regarding the validity of occupancy certificates issued by the governors. In 2014 the World Bank reported Nigeria ranks among the lowest in terms of ease of registration of property title. Nigeria would benefit from land reforms that leads to validity

of land usage rights and limits the government's ability revoke occupancy rights. According to the Central Bank of Nigeria the interest rate as of March 2020 is 13,5%. Nigeria has high interest rates and this further limits the development of financial markets.

2.1.13. Mozambique

According to Direito (2013) in the early 1890's the Portuguese military overthrew local Mozambican chiefs to take control of their land and the administration thereof. Pre-colonization land in Mozambique similarly to other African territories was held by the community. According to Direito (2013) the bill drafted in 1901 by the Portuguese parliament permitted the native people of Mozambique to own land, albeit this was only permitted after 20 years of continuous productive use of the land. The 1901 bill resulted in Africans becoming squatters in their own land. In 1918 a land bill was passed by Portugal which no longer permitted Mozambican natives to own land, natives were now only entitled to receive titles of occupation under specific conditions.

After gaining independence, democratic Mozambique nationalized all land. The commercial farms that were previously owned by colonial settlers were now owned by the state and the Mozambican natives continued to work as labourers on the farms. According to Chitanga and Moyo (2018) "nationalization promoted concentration of ownership of land under the state, without restoring land or making it more accessible to indigenous people". Van Den Brink (2008) states at the end of the civil war in 1992 Mozambique adopted various laws including a new Land Law adopted in 1997 The Mozambican government shifted to a free market land tenure system. Citizens had right of use, which is transferable subject to certain restrictions and is inheritable. The land-use and benefit rights are called DUATs in Portuguese, which stands for Direito do Uso e Aproveitamento da Terr they can be allocated to anyone who wants access to land. Land titles are secure and they have a renewable tenures of up to 50 years.

According to the World Bank from 1981 till 2018 the average GDP growth rate in Mozambique is 5.5%. GDP growth rates peaked at 12.72% in 2010. The unemployment rate is currently 23.78% and more than 67% of the population still lives in rural areas according to the World Bank. The high levels of unemployment are an indication that Mozambique like most African countries need to reassess their economic policies and implement policies that will result in investor confidence, higher economic growth rates which in turn will lead to lower levels of unemployment and poverty. According to the World Bank capital inflows of FDI are 18,2% of GDP in 2018, this further limits economic growth in Mozambique.

According to Hearn and Piesse (2008) the Mozambican stock exchange (Bolsa de Valores de Mozambique) was founded in in1999. The stock market is under developed and illiquid. According to the Mozambican stock exchange the market capitalization was only 10% of GDP in 2019. The stock exchange only has 57 listed stocks and majority of the trades are for treasury bonds. According to Hearn and Piesse (2008) the growth of the Mozambican stock exchange is stalled by a lack of transparent and efficient enforcement of property rights. Access to land in Mozambique is still a lengthy process with ambiguities in the application of the law and is the process is also hindered by bureaucracy. In February 2020 the Mozambican

central bank announced lending rates at 15,75%. High lending rates have an adverse impact on economic growth.

2.2. General observation from literature review

From the literature review it is evident that effective implementation of land reforms have a positive contribution to economic growth and reduction of unemployment in a country. Allocation of land rights during land reform plays a significant role in the determination of active property markets land development and urbanisation. Countries that have successfully implemented land reforms have active markets even when land is owned by the state. Due to high investor confidence these countries attract FDI and have low interest rates which supports high GDP growth rates.

On the other end of the spectrum countries that have been unsuccessful in the implementation of land reforms and have been unable to distribute wealth and have low levels of GDP growth high unemployment rates and struggle to attract sufficient levels of FDI. The property markets are inactive and bureaucracy has an adverse effect on property transactions leading to unnecessary delays in the registration of property rights and causing difficulty in raising of capital to develop land. According to Natcher, Hickey, & Nelson, (2009) "Numerous studies have shown that without secure rights to own or use the land, resources users often lack a commitment to make a long-term investment and employ unsustainable practices".

3. Methodology

The paper tests the effect of land nationalization on the credit risk premium and in the household disposable income. The total house debt is used as a proxy mortgage bond data for, as a significant portion of household debt is from mortgage bond debt. The mortgage bond debt also includes the debt due for the land occupied by households. The paper assumes that mortgage debt is the only household debt. Household disposable income is calculated using interest rates.

$$YD = Y - Yt - R_t^m D_t^H \quad (1)$$

In formula one above YD is household disposable income and Y is the household income. Yt is the income tax paid by households R_t^m is the interest rate paid on the mortgage loan D_t^H. The hypothesis that this paper seeks to test is the nationalization of land will lead to an reduction in D_t^Hin which will lead to an increase in YD, however nationalization will lead to an increase in R_t^m due to the weaker collateral which will lead to an increase in the credit risk premium. For nationalization to have a positive effect the increase in R_t^m should be lower than the saving on D_t^H due for land. All variables used in equation are nominal.

In order to illustrate the effect on land nationalization on YD we specify the mortgage bond rate as follows:

$$(1 + R_t^m) = (1 + R_t^{20})\,(1 + \rho_t) \quad (3)$$

Where R_t^m is the mortgage bond interest rate and R_t^{20} is the 20 year government bond yield and ρ_t is the credit risk premium charged by the lender (commercial bank) for the use of their funds.

Formula 4 below calculates R_t^{20}

$$R_t^{20} = 2(R_t^{10} - R_t^0) + R_t^0 \quad (4)$$

From the data collected we found the yields on the 10 year RSA government bonds symbolised by R_t^{10}.$R_t^{10}$was utilised to calculate R_t^{20}.We need to use R_t^{20}as mortgage bond debt is payable over a 20 year period. $R_t^{20}$is calculated using the spread between R_t^{10} and the T-bill yield R_t^0. The spread between $R_t^{10}$and R_t^0 is the equivalent of a ten year spread. It is assumed that the risk profile from the next 10 years t_{10} to t_{20} remains the same. To calculate the 20 year spread the 10 year spread is multiplied by 2. The R_t^{20} is therefore the 10 year spread multiplied by 2 plus R_t^{20}.

To isolate the effect of land nationalization on ρ_t we use formula 5 and 6 below.

$$(1 + \rho_t) = \left(\frac{Dt}{At}\right)^{\theta} \quad (5)$$

$$\rho_t = \theta(D_t - A_t) \quad (6)$$

ρ_t is calculated using various inputs including but not limited to D_t which is the total mortgage debt owed to the lender; A_t is the value of the asset (collateral) and θ which is all other variables that affect ρ_t . The paper focuses on calculating ρ_t as affected by D_t and A_t on ρ_t. Equation 6 is the log of equation 5.

Formulas 7 to 9 below show the calculation of $\rho_t$specifically associated with the mortgage bond debt due on the physical structure

$$(1 + \rho_t^w) = \left(\frac{D_t^H}{A_t^H}\right)^{\theta} \quad (7)$$

$$\rho_t^w = \theta(D_t^H - A_t^H) \quad (8)$$

$$\tilde{\rho}_t = \varepsilon_t + \rho_t^w \quad (9)$$

The credit risk premium ρ_t is based on the mortgage bond, the debt D_t comprises of the debt due on the building (physical structure) represented by D_t^H and the value of the asset property represented by A_t^H. $\tilde{\rho}_t$.is the approximate credit risk premium on the building which is ρ_t^w and an error term ε_t.

Formula 10 is utilized to calculate ρ_t^was follows:

$$\rho_t^w = \frac{(1+R_t^m)}{1+R_t^{20}} - 1 \quad (10)$$

$\rho_t^w$is calculated using R_t^m and R_t^{20}.

The nationalization of land, will lead to the transfer of land ownership from private ownership to the South African government; which will result in ρ_t^wbeing informed by the total debt outstanding on the building other macro-economic factors. The value of the collateral provided to the bank will be lower as it will only include the building as an asset, this is expected to increase the credit risk premium (ρ_t^w.). The regression will be run using formula 5 where the coefficient θ will be defined. Literature has conflicting results regarding the relationship between collateral and risk premium. Some authors Berger & Udell (1990) Blazy & Weill (2007); and Godlewski and Weill (2010) found the relationship between collateral and credit risk premium to be positive. Other researchers Berger, Frame and Ioannidou (2011), found there is a negative relationship between collateral and credit risk. The researcher leans towards the positive correlation as it appears to be more literature supporting a positive relationship between collateral and the credit risk premium.

Common wisdom would also suggest collateral decreases risk associated with debt. As the collateral provides a recourse for the lending in the event of default. It is our expectation nationalizing land would result in increased credit risk premium being levied on mortgage bonds. Albeit we expect the debt outstanding to decrease substantially as a significant portion of the total debt owed for the mortgage bond before the nationalization of land, is attributable to the cost of land.

According to Teker, et al (2013) there are various economic factors that affect risk these include but are not limited to inflation, debt to GDP, and exchange rate. Similarly to Teker et al (2013) Jafari and Adibpour (2016) state inflation and exchange rates as macroeconomic factors that affect credit risk. Research done by Jafari and Adibpour (2016) found there is positive relationship between exchange rate and credit risk, whereas the relationship between economic growth and credit risk is negative. Similarly Ghyasi (2016) found the relationship between inflation and credit risk is negative. In his research titled “Effect of Macroeconomic Factors on Credit Risk of Banks in Developed and Developing Countries: Dynamic Panel Method” Ghyasi (2016) found GDP, inflation and government debt are some of the economic factors that influence credit risk. The research found GDP and inflation have a negative relationship with credit risk.

4. Empirical Results

4.1. Introduction

To test the financial implications of nationalization of land on household disposable income data was collected from the South African Reserve Bank (SARB) and the Federal Reserve Bank of St Louis. The data is collected from 1975 to 2019, quarterly data is collected where available, and where data is presented monthly is was converted to quarterly observations. Some macro-economic data is only available until 2017 and as a result the results are from 1975 to 2017. The following data is collected from the SARB: Predominant mortgage rate for new homes; Household debt to disposable income of households; Household Disposable

income; Gross domestic product at market prices; The Foreign exchange rate ZAR to USD; Prime interest rate of RSA; and Public debt as a percentage of gross domestic product.

The following data was collected from the Federal Reserve Bank of St Louis: Consumer Price Index; 10 year RSA government bond yields; Treasury bills yields; and the residential property price index for South Africa. The South African GDP growth rate was received from the World Bank.

The data was tested to ascertain the effect of collateral, foreign exchange rate, GDP growth and inflation on credit risk premium. The effect of nationalizing land was tested on household disposable income, using various assumption on what percentage of mortgage bond debt relates to residential property (physical structure) and land.

4.2. Results of regression using household debt to residential property price ($\frac{D_t^H}{A_t^H}$) as the only independent variable:

4.2.1. Results from 1975 to 2019:

Table 1 Regression estimate

Variable	Coefficient
LOG(DEBT2A)	0.05* (0.00)
C	0.06* (0.00)
Adj R^2	0.56

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

The coefficient on the household debt to residential property price ratio is significant at 1% level of significance. The positive sign of the coefficient indicates an increase in the household debt to residential property ratio will increase the credit risk premium. A decline in the value of the asset A_t^H which is provided as collateral will increase the ratio. Therefore nationalization of land will decrease the collateral provided thereby increasing the household debt to residential property price ratio which lead to an increase in the credit risk premium. From 1975 to 2019 we fail to reject the Null Hypothesis H_0 The lower value of collateral will increase the credit risk premium charged on interest rates of mortgage bonds. Weaker collateral will increase the credit risk premium by 0.05%.

4.2.2. Results from 1975 to 2006 pre global economic crash:

Table 2 Regression estimate

Variable	Coefficient
LOG(DEBT2A)	0.02* (0.00)

C	0.04* (0.00)
Adj R^2	0.56

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

The coefficient on the household debt to residential property price ratio is significant at 1% level of significance. Therefore from 1975 to 2006 we fail we reject the null hypothesis H_0. An increase in the household debt to residential property price ratio will increase the credit risk from 1975 to 2006 by 0,02%. Weaker collateral will increase the household debt to residential property price ratio.

4.2.3. Results from 2010 till 2019 for the global economic crash and the period after:

Table 3 Regression estimate

Variable	Coefficient
LOG(DEBT2A)	0.20*** (0.09)
C	0.08* (0.01)
Adj R^2	0.11

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

Post the global economic crisis to date (2010 till 2019) the coefficient of the household debt to residential property price ratio is significant at 10% level of significance. We therefore fail reject the null hypothesis H_0 for the period 2010 to 2019. Weaker collateral will increase credit risk premium by 0,2%

The results from the ordinary least squares regression analysis reflect weaker collateral increases the credit risk premium on mortgage bond rates over an extended period. Therefore if land is nationalised; commercial banks will charge higher mortgage bond rates, the increase in the credit risk premium will be 0,05%.

4.3. Results of regression using macro-economic variables household debt to residential property price ($\frac{D_t^H}{A_t^H}$), exchange rate, inflation, economic growth

4.3.1. Results from 1975 to 2017:

Table 4 Regression estimate

Variable	Coefficient
LOG(DEBT2A)	0.02* (0.00)
LEXCHANGER	0.21** (0.02)
DLCPI	-0.20* (0.04)
LG	-0.00* (0.00)
C	0.12* (0.01)
Adj R^2	0.79

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

The coefficients on household debt to asset ratio, the inflation rate and the GDP growth rate are significant at 1% level of significance from 1975 till 2017. The exchange rate (ZAR to USD) is significant at 5% for the same period. The household debt to asset ratio and the exchange rate have a positive relationship with the credit risk premium. Weaker collateral will lead to an increase in the credit risk premium of 0,02%. A stronger rand against the USD will lead to a 0,21 % decrease in the credit risk premium on mortgage bonds. The inflation and the GDP growth rate have a negative relationship with the credit risk premium as reflected by the negative in front of the coefficient for inflation and the GDP growth rate. An increase change will decrease the credit risk premium by 0,20%. An increase in the GDP growth will have minimal effect on the credit risk premium as is reflected by the 0 coefficient.

With the inclusion of three additional macro-economic variables that influence credit risk premium the household debt to property price ratio is insignificant from 1975 to 2017 we therefore fail to reject null hypothesis H_0.

4.3.2. Results from 1975 to 2006 pre global economic crash:

Table 5 Regression estimate

Variable	Coefficient	
LOG(DEBT2A)	0.017*	(0.00)
LEXCHANGER	-0.04	(0.02)
DLCPI	-0.11*	(0.03)
LG	-0.0	(0.00)
C	0.03**	(0.01)
Adj R^2	0.56	

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

The household debt to residential property ratio and the inflation are significant at the level of 1%. Both the exchange rate and the GDP growth rate are insignificant from 1975 to 2006. The relationship between the household debt to property ratio is positive as reflected by the positive sign in from the coefficient. Weaker collateral will increase the credit risk premium by 0,017%. From 1975 to 2006 the exchange rate, the inflation rate and the GDP growth rate will have a negative relationship with the credit risk premium. An increase in inflation will lead to a decrease in credit risk premium by 0,11%. We fail to reject Hypothesis H_0. The lower value of collateral will increase the credit risk premium charged on interest rates of mortgage bonds.

4.3.3. Results from 2010 till 2017 for the period post the global economic crisis:

Table 6 Regression estimate

Variable	Coefficient	
LOG(DEBT2A)	0.07***	(0.06)
LEXCHANGER	0.55	(0.21)
DLCPI	0.77**	(0.17)
LG	-0.02*	(0.00)
C	0.06	(0.03)
Adj R^2	0.733	

*,**,***Is significance at 1%, 5%, 10% respectively the figure in brackets is the standard error

The household debt to residential property ratio is significant at a 10% level from 2010 to 2017. The inflation are significant at a 5% level of significance from 2010 to 2017.The GDP growth is significant at a significance level of 1%. The exchange rate is insignificant from 2010 to 2017. The relationship between the credit premium and the household debt to residential property ratio, the inflation, and the exchange rate is positive. The GDP growth rate have a negative relationship with the credit risk premium as indicated by the negative sign in front of the coefficients of these variables. The credit risk premium will increase by 0,07% using data from 2010 to 2017 is the collateral is weaker. A weaker exchange rate will increase the credit risk premium by 0,55%. Increase in inflation will increase the credit risk premium by 77%. Decrease in GDP growth will decrease the credit risk premium by 0,2% from 2010 to 2017. From 2010 to 2017 we fail to reject the hypothesis H_0.

4.4. Effect of increase in credit risk premium on household disposable using one variable household debt to residential property price:

Household disposable income before expropriation will be calculated as follows:

$$YD = Y - Yt - R_t^m \frac{D_t^H}{p_t} \quad (1)$$

YD =R752 434,94 million in quarter 2 of 2019

D_t^H= R547 020,20 million in quarter 2 of 2019

R_t^m= 10,25% in quarter 2 of 2019

Therefore $Y - Yt = YD - R_t^m \frac{D_t^H}{p_t}$

$Y - Yt$= R752 434,94 – 10,25%(R547 020,20)

= R808 504,51 million

Household disposable income after nationalization of land will be calculated as follows:

$$YD = Y - Yt - 1.05r\frac{1}{2}D_t^H - RL$$

4.4.1. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 50% the value of debt.

The credit risk premium would increase by 0,5% from 6,83% in quarter 2 of 2019 (calculated using formula 10) to 6.86% therefore mortgage loan rate will increase to 10,28%. Assuming ground rents are 1% of land value

YD= R808 504,51 –{10.28%*(50%* R547 020,20)} –(1%*50%* R547 020,20)

=R777 641,22 million

Therefore nationalization of land assuming 50% of the cost of property is land will lead to a R25 206,28 million (3.35%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

4.4.2. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 40% value of debt

YD= R808 504,51 –{10.28%*(60%* R547 020,20)} –(1%*40%* R547 020,20)

=R772 562,60 million

Therefore nationalization of land assuming 40% of the cost of property is land will lead to a R 20 127,66 million (2.68%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

4.4.3. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 30% value of debt

YD= R808 504,51 –{10.28%*(70%* R547 020,20)} –(1%*30%* R547 020,20)

=R766 792,12 million

Therefore nationalization of land assuming 40% of the cost of property is land will lead to a R14 357,18 million (1.91%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

4.5. Effect of increase in credit risk premium on household disposable in macro-economic variables

The credit risk premium would increase by 0,02% from 6,83% in quarter 2 of 2019 (calculated using formula 10) to 6.84% therefore mortgage loan rate will increase to 10,26%. Assuming ground rents are 1% of land value

4.5.1. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 50% the value of debt.

YD= R808 504,51 –{10.26%*(50%* R547 020,20)} –(1%*50%* R547 020,20)

=R 777 697,26 million

Therefore nationalization of land assuming 50% of the cost of property is land will lead to a R25 262,32 million (3.36%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

4.5.2. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 40% value of debt

YD= R808 504,51 –{10.26%*(60%* R547 020,20)} –(1%*40%* R547 020,20)

=R 771 531,81 million

Therefore nationalization of land assuming 40% of the cost of property is land will lead to a R 19 100,87 million (2.54%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

4.5.3. Effect of nationalization of land on household disposable income (1975 to 2019) assuming land is 30% value of debt

YD= R808 504,51 –{10.26%*(70%* R547 020,20)} –(1%*30%* R547 020,20)

=R 765 374,36 million

Therefore nationalization of land assuming 40% of the cost of property is land will lead to a R 12 939,42 million (1.72%) increase in household disposable income. We therefore fail to reject the null hypothesis H_1: Transfer of land ownership from private to public ownership increases household disposable income

5. Conclusion

The research has reviewed literature to ascertain the economic effectives of land reform on a countries GDP growth which in turn affect a countries unemployment rates and FDI inflows.

The research used a regression analysis to test the nationalization of land on the credit risk premium and the household disposable income.

The nationalization of land in South Africa from land expropriation will increase the credit risk premium charged by commercial banks on mortgage bonds over a 44 year period 1975 to 2019. The incremental credit risk premium will lead to higher mortgage bond rates. Our research however found the nationalization of land will increase household disposable income, due to the decrease in household by the cost attributable to the land.

The literature review found that even in countries where land is owned by the state like China, Singapore and Mozambique there are still active land markets. We found that countries where land reforms where unambiguous and were enacted in accordance with the law have high GDP growth rates, higher levels of FDI inflows and lower levels of unemployment. It is however important to note that land reforms that will lead to nationalization of land in South Africa will only have positive economic effects if the land reform process is unambiguous, is enacted according to the law and there is little to no corruption involved. The incremental household disposable income earned from the nationalization of land could be utilized to increase economic growth in South Africa. Households will have more money to spend or save which will increase GDP.

We would recommend the South African government to look into the nationalization of land. The government would charge households ground rents for the utilization of land. The ground rents collected by the state from households for the utilization of the land can be used for capital expenditure, education and health care which would have a positive effect on GDP growth.

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