

An Analysis of the Challenges Faced by Banks in Managing Credit in Zimbabwe

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Abstract

The purpose of the study is to analyse the challenges facing banks in managing credit in Zimbabwe in the wake of the multicurrency regime that was introduced in the year 2009. The study is relevant considering that banks have an important role of financing the undercapitalised productive sectors . The chi-square is used to establish the relationship between the banks' lending decisions and the level of exposure. The results of the study suggest that increasing lending by banks exposes them to high risk of failure. The findings of this study have important implications for policy makers and banks in Zimbabwe.

Keywords: risk, credit management, multicurrency, level of exposure

1. Introduction

The study examines the challenges faced by banks in managing credit in Zimbabwe. This subject has become a contentious issue given the low lending levels by banks to the country's productive sector, as measured by lending capacity of about 65.01% of the available deposits as at 31 December 2010 against international standards of between 70-80%. The multicurrency regime has incapacitated the Reserve Bank and is no longer in a position to inject liquidity through the banks for onward lending to the productive sector. A number of studies have attempted to explain how various governments and central banks tackled the financial crisis in other countries. Goddard et al (2009) provided an account of the 2007-2009 global financial crises in Western Europe and he detailed measures that were enacted by governments and central banks to deal with toxic assets and recapitalize through injection of liquidity into the banking system. On the Greek financial crisis, the European Union (EU) created a legal instrument- The European Financial Stability Facility (EFSF) which was aimed at preserving financial stability to troubled Euro zone states (Goss 2010) and the International Monetary Fund (IMF) and the EU also gave Greece a bailout of US\$146 billion, which was a stop gap measure to reduce the ensuing contagion from the Greek debt crisis on other European markets. In the USA, the government responded to the 2007-2009 mortgage crises by bailing out troubled banks through capital injections (Mazumder et al 2009). Countries such as Zimbabwe have lost currency and have no bailout capacity due to the use of the multicurrency regime and the international community is not willing to provide lines of credit has left researchers wondering how banks in Zimbabwe are managing credit and by extension risk in such an operating environment.

1.1 Statement of the Problem

Commercial banks have a role to play in the recapitalisation of the country's productive sectors. While there is lot of theoretical and empirical research which shows that most governments and central banks injected liquidity into their ailing banks and other countries such as Greece received bailout assistance from the IMF and the EU member states such as Germany to ease their crisis, there is an information gap on how banks in countries such as Zimbabwe which lack bailout capacity as the central bank can no longer print money due to loss of currency, and the international lenders are unwilling to provide lines of credit, are able to manage credit an risk in such a highly unstable financial environment. The study thus seeks to bridge the information gap in existing literature on how the banking system in Zimbabwe can manage credit and increase their lending capacity the wake of lack of bailout capacity by the government and the unwillingness by the international community to provide credit lines.



1.2 Hypothesis of the Study

H1: Banks' level of lending has an impact on the level of non-performing loans.

H2: Banks' general approach to lending affects the capacity of the bank to manage risk.

H3: Loan concentration by banks has increased their risk of exposure.

H4: Interbank lending can help reduce exposure.

H5: Retention of money by banks can help minimise exposure.

2 Literature review

2.1 The Concept of Credit management

Banks raise funds by collecting deposits from businesses and individual depositors and makes out loans to individuals, businesses and the government through buying bonds. Thus the primary assets of banks are loans and bonds while primary liabilities are made of deposits. According to Saunders and Cornett (2005), a banks' balance sheet has loans representing the majority of a bank's assets, but the loans come with risk. If the bank makes bad loans to firms or consumers for example, the bank will be in a crisis if those loans are not repaid. Credit management is thus fraught with rewards and risks that need to be balanced through judicious and prudent risk management, failure of which may lead to litigation, financial loss or damage of the banks reputation (RBZ Guideline No. 1 2006). Lending activities have been controversial and a difficult matter especially in developing and emerging countries (Richard 2006). This is because business firms on one hand are complaining about lack of credits and the excessively high standards set by banks, while commercial banks on the other hand have suffered large losses on bad loans. It has been found out that in order to minimize loan losses and credit risk, it is essential for banks to have an effective credit risk management system in place (Basel 1999).

Bank credit is the borrowing capacity provided to an individual by the banking system in the form of a credit or a loan. The basic philosophy of the banking system is that when money is loaned out, there must be reasonable expectation of repayment of the loan, plus interest. Credit risk arises from uncertainty in a given counter party to meet an obligation (Fatemi and Foolad 2006). It is the risk of loss caused by a debtor defaulting on a loan or line of credit. In a bank's portfolio, losses stem from outright default due to inability or unwillingness by customer or counter party to meet commitments in relation to lending, trading, settlement and other financial transactions. Alternatively, losses may result from reduction in portfolio value due to actual or perceived deterioration in credit quality.

The economic development of a country depends largely on its ability to mobilize the necessary savings to finance capital formation in order to raise the country's productivity. Zimbabwe has been experiencing low savings due to the short term nature of deposits, low income levels and low interest rates paid on deposits. According to the Reserve Bank of Zimbabwe in its December 2009 Monetary Policy Statement, broad money (M3), increased from US\$297.6 million in January 2009 to US\$991.9 million in October 2009 but this was however dominated by transitory deposits. In October 2009, deposits of a short term nature constituted 97.8% of the total deposits reflecting low income levels, punitive administration and service charges which discourage savings. The savings behaviour of individuals is explained by the interest paid on deposits, the higher the interest paid on deposits, the more money that is saved. The country is experiencing low interest rates on deposits of about 0.2% against lending rates of above 28% per annum plus bank charges which clearly discourage savings. From both empirical and theoretical studies on savings, it can be concluded that developing countries such as Zimbabwe require high savings for their economic growth as industry can borrow for expansion.

The Zimbabwe banking sector is also under serious threat from systematic risk which during financial crises has major economic costs which extend well beyond the losses borne by the shareholders of the failing financial institutions. A model by Gal (2007) suggest that financial innovation and integration coupled with greater macro-economic stability have served to make systematic crises in developed countries less likely to occur than in the past. The Turkish twin crises of November 2000 and February



2010 suggest that the systematic banking crises was a result of a decade long macro-economic problems such as high inflation, high public sector borrowing, credit rationing in the private sector without prudential regulatory framework, foreign exchange position in the banking sector and the dominance of inefficient large state banks. After the conclusion of the 2010 Article 4 consultation with Zimbabwe, the IMF executive board described the Zimbabwe financial sector as prone to systematic vulnerabilities mainly due to the absence of lender of last resort, lack of liquidity and given an inactive interbank market. In the event that a single entity or cluster of entities fails, that development has a contagion effect on the entire system.

Moral suasion on banks has an impact on the containment of risk as it triggers a high level of credit risks as most loans and advances end up being given to customers with a high risk of default. Moreover, in most developing countries the prevalence of politically directed loans to failing businesses; corruption and fraud are some of the causes of the financial crises. In its December 2009 monetary policy statement, the Reserve Bank of Zimbabwe (RBZ) urged banks to reorient their lending portfolios to achieve particular thresholds disregarding IMF recommendation and in so doing exposing the industry to systematic risk as correctly observed by the IMF and The Minister of Finance in his 2010 budget review in June.

Davies (2003) argues that central banks have the ability to produce at their discretion currency to institutions facing liquidity problems to delay the legal insolvency of banks. Xavier (2010) urged that the existence of a lender of last resort is justified by the existence of a systematic financial crisis, and central banks should design appropriate strategies to avert such events through appropriate interventions at the macroeconomic level by providing liquidity to failing institutions the Reserve Bank has not been performing one of its key functions as the lender of last resort. Some banks have responded by taking a conservative approach with some banks having loan to deposit ratios as low as 19.94% whilst others have adopted an aggressive approach with loan to deposit ratios of 125.44%. Due to the lack of capacity by the central bank, it is now very risky for a bank to experience liquidity shortages as it will be very difficult to close that liquidity gap as it is also difficult to get accommodation from the inter-bank or other sources due to the general liquidity crunch in the economy. The burden of ensuring that depositors are always able to withdraw their cash, that is, the keeping of adequate reserves, now falls squarely and fully on banks.

Poor loan quality is another challenge that is facing the financial sector in Zimbabwe. Loans constitute a large proportion of credit risk as they normally account for 10-15 times the equity of a bank (Kitua 1996). Thus, banking business is likely to face difficulties when there is a slight deterioration in the quality of loans. Brown Bridge (1998) observed that these problems are at their acute stage in developing countries where the problem often begins right at the loan application stage and increases further at the loan approval, monitoring and controlling stages, especially when Credit Risk Management guidelines in terms of policy and procedures for credit processing do not exist or are weak or incomplete. Credit management becomes more difficult and more complex in economies that are experiencing a credit crunch. Banks are less willing to supply credit during periods of deteriorating asset quality. Consequently, firms can suffer from a credit crunch if bank lending falls short of demand. Contractions in bank lending are believed to have caused the 1990-1991 recessions in USA and the 19991-1996 recession in Japan. Slow credit growth as having important policy implications because companies cannot fund operations without support from banks, and so, they start reducing the level of operation leading to contraction of economic activity with resultant fall in employment.

According to Auronen (2003), the theory of asymmetric information argues that it may be impossible to distinguish between good borrowers from bad borrowers, which may result in adverse selection and moral hazards problems. Adverse selection and moral hazards have led to substantial accumulation of non-performing accounts in banks. Derban et al (2005) observes that considerations that form the basis for sound credit risk management system include: policy and strategies (guidelines) that clearly outline the scope and allocation of a bank credit facilities and the manner in which a credit portfolio is managed, that is, how loans are originated, appraised, supervised and collected. Derban et al further argues that screening borrowers is an activity that has widely been put to use in the banking sector in the form of credit assessment. According to the asymmetric information theory, a collection of reliable information from prospective borrowers becomes critical in accomplishing effective screening. This appears to be true to the financial system in Zimbabwe in which banks are still smarting from the effect of the multicurrency and



most banks are still studying their clientele base before they make any meaningful lending to the economic sectors, with business on the other hand complaining that banks are not providing any meaningful lines of credit

The Bank of Malawi (2007) identifies credit concentration as an aspect that increases the risk exposure of the banks. It defines this as the exposure where the potential losses are large relative to the banking institution's capital, its total assets and the banks' overall risk level. The bank also points out that the Asian crisis is a typical case of how close linkages among emerging markets under stress situations and correlation between market and credit risks as well as between those risks and liquidity risk can lead to widespread losses. In Zimbabwe, some banks have taken an aggressive approach with the bulk of the loans being salary based, with other banks having concentrated their loans in other sectors such as agriculture. However, authorities view diversification as an alternative in mitigating losses. Ho and Yusoff (2009) contend that spreading investments into a broader range of financial services or loans, business person, mortgages among others reduces both the upside and downside potential and allows for more consistent performance under a wide range of economic conditions, and this can be performed across products, industries and countries. That diversification reduces risk rapidly as the total risk of loan provision fall as a variety of loan products and borrowings from different industries increases, assuming the correlation between markets is not perfect.

3. Methodology

A survey research was adopted to help understand the challenges and recommend strategies that can be adopted by banks to manage credit. The study collected quantitative data through questionnaires and semi structured interviews. The country has a total of sixteen commercial banks and a total of ten banks formed the sample. One hundred and ninety (190) questionnaires were administered personally and electronically, and one hundred and seventy six were returned (176), representing about 92% response rate and six interviews were held by heads of advances. The Chi Square Test was used to analyse the data to establish the accuracy of the hypothesis by determining the statistical likelihood that the data reveal true differences.

4. Results and Discussion

The research sought to find out the levels of bank credit as measured by loan to deposit ratio, and 40% of the respondents revealed that their banks' loan to deposit ratio was below the industry average of 65.1%, while 23% showed that it was between 61-80% and 37% indicated that their lending volumes was above the 80%. The results point to the fact that bank lending to the productive sectors of the economy has remained very low as banks are faced with a number of constraints before they could make any meaningful loans. It was established that shortage of cash as a result of the use of the multi-currency system and the lack of capacity by the economy to generate the required amount of money to facilitate recapitalization are the main reasons why credit has remained very low. The research also revealed that the level of non-performing loans was increasing with 41% of the respondents confirming this position, while 27% and 32% of the respondents were of the opinion the level of non-performing loans was constant and decreasing respectively. This shows that credit risk is increasing, and Kitua (1996) pointed out that banking business are likely to face difficulties when there is a slight deterioration in the quality of the loans. High credit risk is a result of the economic challenges that has seen business struggling to survive, while in some cases, companies have shut down or retrenched thus increasing the default rates especially for salary based loans.

Given the levels of credit volume and non-performing loans in the economy, the research sought to test the Hypothesis that the level of lending has an effect on the risk exposure of the banks (Table 1) .At the 5% level of significance and 4 degrees of freedom, the Chi-Square Statistic (X2stat) of 9.488 is less than the Chi-Square calculated (X2cal) of 9.585. Therefore, the Hypothesis (H1) that lending levels of banks affect the level of non-performing loans is accepted. Banks are therefore exposed to credit risk due to the economic challenges which have put pressure on business and in some cases firms have retrenched which



has impaired borrowers especially employees who have borrowed basing on their salaries. The situation is heightened by use of moral suasion by authorities such as the RBZ who have urged banks to increase their lending thresholds to certain sectors such as agriculture. Caprio and Klingebiel (2002) point out that the prevalence of politically directed loans to failing businesses; corruption and fraud are some of the causes of the financial crisis.

The research also sought to find out the general approach adopted by banks to lending, and to establish whether banks are in a position to manage risk. Most respondents (41%) showed that their banks adopted an aggressive approach, while 31% indicated that their banks had a moderate approach and 28% a conservative approach. The study revealed that the aggressive approach was mainly adopted with respect to employees basing on their salaries, and given that the economy is still recovering, this tends to heighten the exposure of the banks to credit risk as business is still struggling with others retrenching and shutting down. It is against this background that prompted the researchers to test the Hypothesis (Table 2) that there is a relationship between the banks' approach to lending and the banks' ability to manage risk.

At the 5% level of significance and 6 degrees of freedom, the Chi-Square Statistic (X2stat) of 12.59 is less than the Chi-Square calculated (X2cal) of 19.66. The Hypothesis that banks' general approach to lending affects the capacity of the bank to manage risk is accepted. The results show that the aggressive approach that has been adopted by most banks exposes them to risk as banks may fail to manage risk and this is compounded by lack of capacity of the country to print money due to the use of multi-currency; neither does it have the capacity to borrow from multilateral institutions. Goss (2010) revealed that the EU, through Germany and the IMF came to the rescue of Greece by providing a bailout of US\$146 billion while in the USA government had the capacity to print money for bailouts to avert the financial crisis, and the same scenario was also experienced in UK where the government responded by providing bailouts.

The research also established that most of the bank concentrated their loans on agriculture and mining (Table 3), and as such the researchers sought to test the Hypothesis that loan concentration has increased the risk exposure of the banks. At 5% level of significance and 6 degrees of freedom, the Chi-Square Statistic (X2stat) of 12.592 is less than the Chi-Square calculated (X2cal) of 24.97. The results show that credit is mainly concentrated in the agricultural and mining sectors, and this implies that banks have increased their levels of exposure as failure in one of the sectors where credit is concentrated may leave banks suffering large losses from bad loans, for example, a less than satisfactory agricultural season reduces the capacity of affected firms and individuals to repay the loans. Spreading investments into a broad range of financial services or loans, business, industries and countries reduces both the upside and downside potential. Diversification reduces exposure rapidly, as the total risk of loan provisions falls as a variety of loan products and borrowers from different industries increases, assuming the correlation between markets is not perfect. Therefore, the results of the study point to the fact that banks in Zimbabwe are exposed to great risk as they have concentrated their loans in a few sectors of the economy.

The respondents were also requested to indicate levels of inflows into the money market, and 78% of the respondents showed that there are fewer inflows into the money market while 22% disagreed. The interviews confirmed that fewer inflows resulted from lack of savings in the country and low income levels. a high cash inflow through savings provides adequate capital resources which ensure the flexible mobility and ready availability of cash and by extension, guarantees the stability of the banking sector. A lack of significant cash inflows into the money market increases instability in the financial sector

The study also sought to establish the levels of interbank lending, and it was found out that 40% of the respondents indicated that the level of activity is very low, while 23% showed that it was high and constant respectively. Given the levels of exposure and the general lack of liquidity in the economy, the researchers



sought to test the Hypothesis that interbank lending can help reduce exposure (Table 4). At 5% level of significance and 4 degrees of freedom, the Chi-Square Statistic (X2stat) of 9.488 is less than the Chi-Square calculated (X2cal) of 9.585 The Hypothesis that Interbank lending can help reduce exposure is accepted. Fewer inflows into the money market constrain the ability of banks to lend among themselves. Sufficient cash reserves in the market provides resources which can be used by banks for onward lending and are critical for maintaining the stability of the financial sector. The low activity on the interbank market increased the risk exposure of the banks as it was difficult to get accommodation from the market in the event of a liquidity gap, thus the interbank market is very instrumental in reducing the risk exposure of the banks. The absence of the interbank market and lender of last resort have increased the risk exposure of the banks as the burden of ensuring that depositors are always able to withdraw their cash now falls squarely and fully on banks.

The respondents indicated that banks have introduced new products or services as a result of the multi-currency. About 33% indicated that banks were attracting new clients as a result of the new products or services while 67% of the respondents said the products were not making significant impact in attracting new clients, the economic development of a country depends largely on its ability to mobilize necessary savings to finance capital formation in order to raise the nation's productivity. It appears banks are failing to come up with new products and services that attract new banking business and clients.

Respondents were requested to indicate how much interest is paid by their banks on savings and deposit accounts. All respondents indicated that interest paid on savings and deposits was less than 5% and this is in sharp contrast to interest charged on loans which ranges from 15% to 30% per annum (Table 5). At 5% significance level and 4 degrees of freedom, the chi-square (X2cal) of 15.45 is greater than the chi-square (X2stat) of 8.9456. Therefore the Null Hypothesis that retention of money does not minimise exposure is rejected while the alternative hypothesis that retention of money minimise exposure is accepted. The savings behavior of individuals is explained by the interest paid on deposits, the higher the interest paid, the more money that is saved, thus the low interest rates clearly discourage savings. There is no incentive for people to keep their money in banks due to low interest rates paid on deposit and savings accounts. Rather, it appears banks in Zimbabwe are penalizing depositors for saving through punitive bank charges against low interest rates paid on such savings. Most banks process withdrawals and this has resulted in deposits remaining of a short term nature. This poses a challenge for banks to increase lending due to the uncertainty of withdrawals. More so, the low interest rates paid on deposit and savings accounts discourage people from keeping their money in banks.

5 Conclusion and Recommendations

5.1 Non-performing loans

The level of non-performing loans was found to be increasing showing that banks in Zimbabwe are increasingly being exposed to high levels of credit risk. Banks are likely to face difficulties when there is a slight deterioration in the quality of loans. The economic challenges have impaired borrowers especially for workers most of whom have received loans based on their salaries yet, the same workers are under risk of being retrenched as business are rightsizing. Credit risk has been exasperated by the use of moral suasion as loans end up being given to people who have a high potential of default and as such, authorities must not interfere with the lending portfolio of the banks. In the wake of the distressing operating environment, banks are thus supposed to put in place sound credit risk management systems with policy and guidelines that outline the scope and allocation of credit and to effectively screen borrowers (Derban2005).



5.2 Approach to lending:

It was revealed that banks have taken an aggressive approach with respect to employees basing on their salaries. Given the business environment, this approach has compromised the banks' ability to contain risk as most businesses are still to recover with others losing shop altogether. This has been compounded by the lack of lender of last resort function as the central bank is incapacitated to bail out bans in times of trouble. As such, screening of borrowers is critical and must consider the risk exposure of the particular industries concerned employees are in.

5.3 Loan concentration

Most banks have increased their level of exposure by concentrating their loans in a few sectors of the economy which are agriculture and mining. Poor performance by the sector will have adverse effects on the bank as the capacity of the individuals and firms to honour their obligations is impaired. Banks must diversify their loan portfolios across sectors to spread risk. Ho and Yusoff (2009) states that spreading investments into a broader range of financial services or loans, mortgages or business persons among others reduces both the upside and downside potential and allows for more consistent performance under a wide range of economic conditions and this can be performed across products, industries and countries. Diversification reduces risks rapidly as the total risk of loan provision fall as a variety of loan products and borrowings from different industries increases assuming the correlation between markets is not perfect.

5.4 Interbank Lending

The research established that interbank lending will help minimize the exposure of banks. The interbank market is there but there is low activity as there are fewer inflows into the money market. Banks are under serious exposure to liquidity risk as it is now difficult for banks to get accommodation from the market in the event of a liquidity gap. In that respect, resuscitation of the lender of last resort by government is critical in containing systematic and liquidity risk. Zimbabwe's financial sector is thus prone to systematic vulnerabilities mainly due to the absence of lender of last resort.

5.5 Retention of money

The research revealed that retention of money by banks helps minimize exposure. Banks are failing to retain money as new products and services offered by banks are not effective in attracting new clients. More so, interest paid on savings and deposit accounts is very low and this discourages clients from keeping their money in banks. Banks process more withdrawals than deposits leaving banks with little reserves for lending. Banks must raise the interest they pay on deposit and savings accounts as a way of an incentive for the public to keep their money in banks. More so, banks must introduce competitive products and services so as to attract new clients. The savings behaviour of individuals is explained by the interest rate paid on deposits, thus the more the interest rate, the more money that is saved.

References

Auromen, L (2003) "Assymetric information, theory and applications" paper presented at the seminar of strategy and international business.

Basel (1999) *Principles for the management of credit risk*, consultative paper issued by the Basel Committee on banking Supervision, Basel.

Brown Bridge, M. and Harvey, C. (1998), Banking in Africa, James Currey, Oxford,

Cornett, M.M., Saunders, A. (2005), Fundamentals of Financial Institutions Management, Irwin/McGraw-Hill, Boston, MA,



Derban et al (2005) "Loan repayment performance in community development of financial institutions in the UK" Small Business Economic Vol.25 pp319-23.

Fatemi, A and Foolad I (2006) Credit Risk Management: A survey of practices, www.emeraldinsight.com.

Goddard, J Molyneux P and Wilson J.O.S (2009) *The financial crisis in Europe: policy responses and lessons for the future.* www.emeraldinsight.com

Goss, D.(2010) The Greek Drama www.slate.com.

Ho C.S.F and Yusoff, N. (2009) A preliminary study on credit risk management strategies

Kitua, D.Y. (1996), "Application of multiple discriminant analysis in developing a commercial banks loan classification model and assessment of significance of contributing variables: a case of National Bank of Commerce",

Mazumder M.I and Ahmad N (2010) *Greed, financial innovation or laxity of regulation? A close look into the* 2007-2009 *financial crisis and stock market volatility*. www. Emeraldinsight.com.

RBZ (2009) Monetary policy statement www.rbz.co.z

Reserve Bank of Malawi (2007) Risk Management Guidelines for banking institutions.

Richard, E.Chijoriga, et al (2008) *Credit risk management system of a commercial bank in Tanzania*, www.emerald insight.com.

Table 1

Loan to Deposit	Level of Non-Performing Loans			Total
Ratio	Constant	Increasing	Decreasing	
Below 65.1%	11	36	24	71
65.1%-80%	9	17	15	41
above 80%	28	19	17	64
Total	48	72	56	176

Observed frequencies on the relationship between level of lending and non-performing loans

Table 2

Banks' ability to manage	Approach to Lending			Total
risk	Conservative	Moderate	Aggressive	
Strongly agree	19	16	12	47
Agree	13	14	15	42
Disagree	10	13	18	41
Strongly disagree	7	12	27	46
Total	49	55	72	176

Observed frequencies on the relationship between banks' ability to manage risk and their approach to lending.



Table 3

Sector		Level of exposure		
	No effect	Increasing	Decreasing	
Agriculture	38	6	10	54
Mining	26	14	15	55
Tourism	28	11	10	49
Manufacturing	8	4	16	28
Total	100	35	41	176

Observed frequencies on Loan concentration by banks and levels of exposure.

Table 4

Level of interbank	Impact on risk			Total
activity	No impact	Low	High	
Low	11	24	36	71
High	9	15	17	41
Constant	28	17	19	64
Total	48	56	72	176

Observed frequencies on the level of interbank activity and its impact on risk.

Table 5

Views on interest	Period customers kee	Total		
paid on deposits	1 month and less	2 months	3 months and above	
Unfair	36	24	10	70
Fair	13	25	22	60
Good	20	13	13	46
Total	69	62	45	176

Observed frequencies on the relationship between views on interest paid on deposits and the period customers keep their deposits before withdrawing.

$$\hat{Z} = \sum \frac{(\text{observed} - \exp \text{exted})^2}{\exp \text{exted}}$$

Figure 1. Chi-square equation

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