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Contents   *Page*

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Credit where it's due: Identifying the drivers of weak credit growth in South Africa – September 2016

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Abstract

Growth in real credit extension to the South African private sector has been very weak in the aftermath of the global financial crisis. According to our model, the slowdown in real credit growth was mainly due to weaker business confidence, with slower private sector output growth and tighter commercial bank lending criteria also playing significant roles. The real repo rate, which has been below its historical averages in the post-2010 period, made a positive but only marginal contribution to real credit growth. If these drivers of credit extension had been at their "normal" levels (i.e. 15 year averages), real credit growth would have been on average almost 2 percentage points higher over the 2010-2015 period.

Introduction[1]

With the exception of two months[2], year-on-year growth in nominal credit extension to the private sector[3] has consistently been in single-digit territory since 2010 – substantially below the 15 per cent p.a. average growth measured over the 1994–2009 period. The decline in the nominal growth rate is only partly attributable to lower (GDP) inflation, which declined from an average 8 per cent p.a. over 1994–2009 to 5,7 per cent p.a. over the 2010–2015 period. Clearly, growth in real credit extension was very weak in the post-global financial crisis (GFC) period.

In this note, we use a simple econometric model to test different explanations for weak real credit growth in the post-GFC period. Our results suggest the slowdown in real credit growth is primarily due to weaker business confidence, with slower real growth in the private sector GDP[4] and tighter commercial bank lending criteria[5] also playing significant roles. We find that the real repo rate made a small positive contribution to credit growth, having been below its historical averages in the post-2010 period. Relative to the other factors, however, its impact is marginal. Furthermore, using monetary policy to offset these other factors would have required extremely large adjustments to the (real) repo rate, to the order of several hundred basis points.

Private sector credit extension drivers

In our analysis we focus on real credit extension (Figure 1) – which we construct by deflating nominal credit extension with the GDP deflator over the 2002 to 2015 period.

Figure 1: Nominal and real private sector credit extension

Percentage change over 4 quarters

— Nominal private sector credit extension
— Real private sector credit extension

We identify five potential drivers of credit extension:

a)   Credit standards

With regard to credit standards, our first point of call was the Bureau for Economic Research's (BER) quarterly survey on banks' credit standards. In this survey, banks are asked to respond to the following question: "How do you think have banks' credit standards for approving applications for loans and credit lines changed?" These credit standards refer to the terms of loans and credit lines, such as maximum size, spread of loan rates over a bank's cost of funds, premiums charged on riskier loans and collateral requirements. The response options are 'tightened', 'not changed' or 'eased'. The results are expressed in terms of a net balance calculated as the percentage of banks that answered 'tightened' minus the percentage of banks that answered 'eased'. The percentage of banks which indicated no change is ignored. A net balance above zero suggests a tightening and below zero an easing of credit standards. The long-term average between first quarter of 2001 and the fourth quarter of 2015 was 31,7 index points.

The relationship between credit extension and the BER credit standards is depicted in Figure 2. Although a strong correlation is evident, the variable is not useful in a modelling sense as changes in credit standards seem to lag growth in credit extension and not *vice versa*.[6] This may be reflective of the commercial banking sector pro-cyclically adjusting lending standards with about a six-month lag, but further work on this is advised.

b)   Mortgage rate premium

We then considered the mortgage rate mark-up (or premium) on the repo rate as a proxy for bank lending standards.[7] As depicted in Figure 3, changes in the mortgage rate premium tend to lead changes in credit extension growth.

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[6]   A Granger causality test confirmed this – we rejected the null hypothesis that credit extension does not Granger cause changes in lending standards. The hypothesis was rejected with 10 per cent probability with a two-quarter lag.

[7]   Internal unpublished data from the South African Reserve Bank.

**Figure 2: Real private sector credit
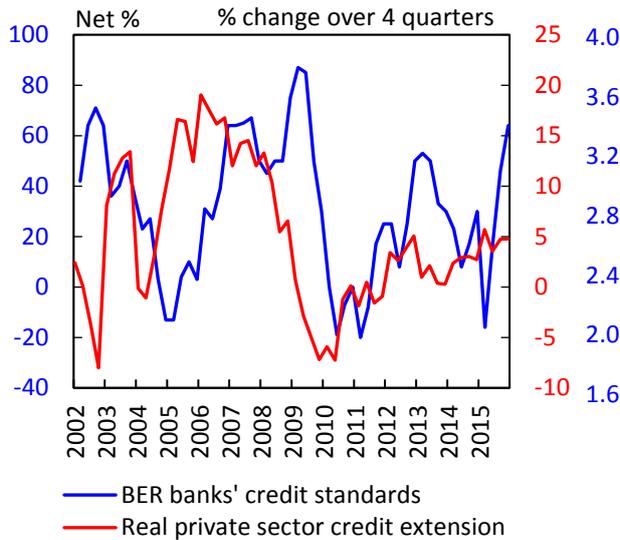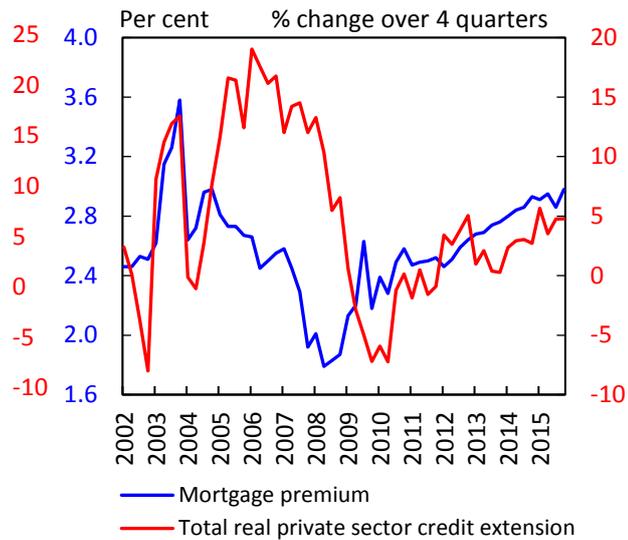extension and BER credit standards**

**Figure 3: Interest rate and credit
extension**

Note the upward trend in the mortgage rate premium in the post-2010 period. It would seem that various factors are at play here. Mortgage rates in the pre-GFC period were perhaps priced too low when the residential property market was buoyant, and subsequently reversed in the post-GFC period. In addition, but to a lesser extent than the aforementioned reason, new Basel regulations[8] added to commercial banks' funding costs, which they probably partly passed on to clients via higher interest rates.

c)   BER confidence measures

The willingness of consumers to obtain credit is likely to depend on how confident they feel about the future. The overall pressure on affordability as discussed earlier, and generally weak growth (next paragraph) probably had a significant impact on confidence. Figures 4 and 5 depict the BER consumer and business confidence indices against real credit extension growth. Although both confidence measures appear to be strongly correlated with real credit extension growth in the pre-GFC period, business confidence shows a stronger correlation in the post-2010 period (and only the latter was statistically significant when the equation was estimated).

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[8]   During the course of the past years banks continued to gradually build up holdings of quality liquid assets. This was to ensure compliance with the phasing in of the Liquidity Coverage Ratio (LCR), which became effective on 1 January 2015. The LCR requires banks to hold an adequate stock of high-quality liquid assets to provide for a 30-calendar-day liquidity stress scenario. Banks were required to meet a LCR requirement of 60 per cent from January 2015, 70 per cent in January 2016 and progressively rising to 100 per cent from 2019.
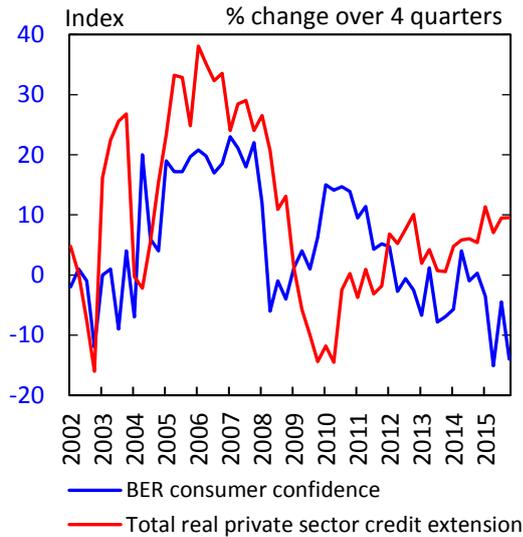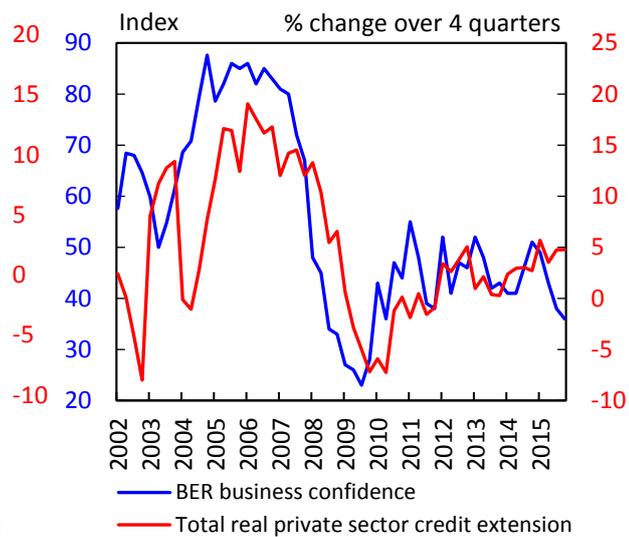
Figure 4: Consumer confidence and credit extention

Index   % change over 4 quarters

— BER consumer confidence
— Total real private sector credit extension

Figure 5: Business confidence and credit extention

Index   % change over 4 quarters

— BER business confidence
— Total real private sector credit extension

d)   **Private sector GDP**

The strong positive correlation between private sector GDP and credit extension is depicted in Figure 6. It is clear from the graph that slower private sector GDP growth in the post-GFC period must have contributed substantially to the lower real credit extension growth during this period.

Figure 6: Private sector GDP and credit extention

% change over 4Q   % change over 4Q

— Private sector GDP
— Total real private sector credit extension
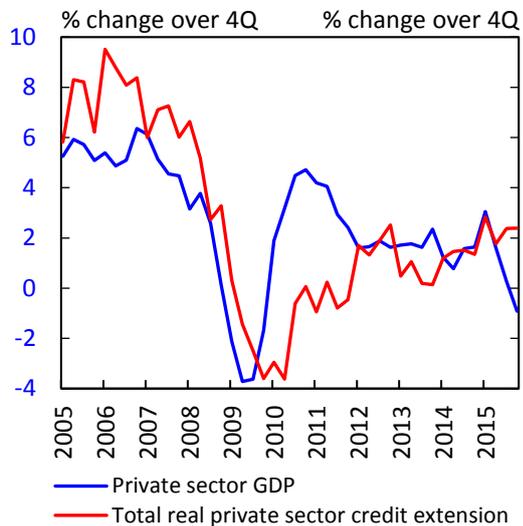
Figure 7: Real repo rate and credit extension

Per cent   % change over 4 quarters

— Real repo rate
— Total real private sector credit extension
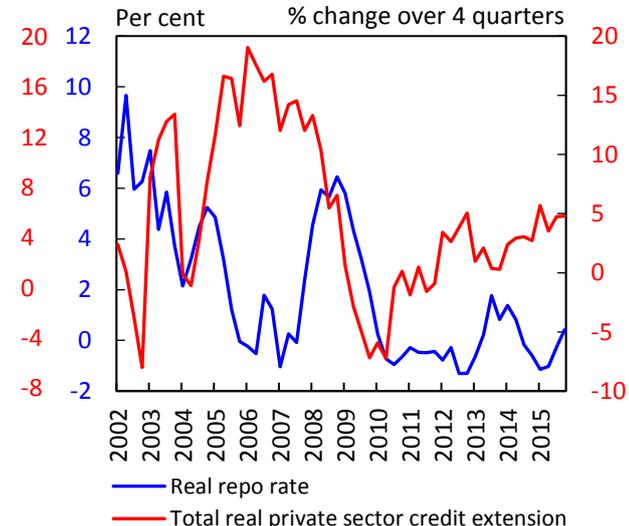
e)   **Real repo rate**

Changes in the real repo rate[9] also seem to have affected real credit growth (Figure 7). Note that the real repo rate has declined substantially throughout the period when compared to the heights reached in 2002 (and to some extent in 2008). On average, the real repo rate in the post-2010 period was substantially below average rates observed in the pre-GFC period.

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[9]   Ex ante real repo rate (based on household consumption deflator six quarters ahead).

Could a lower real repo have supported real credit growth?

Monetary policy was not part of the problem, but perhaps it could have done more to compensate for the other problems. To test this, we conduct an experiment where the real repo rate was 100 basis points lower than the actual repo rate from the first quarter of 2012.[10] According to the model, the benefits from a lower real repo rate take two quarters to work through the system, with real credit growth rising by 0,8 percentage points in the third quarter of 2012 when compared to the actual outcome. The effect then slowly dissipates, so that the cumulative im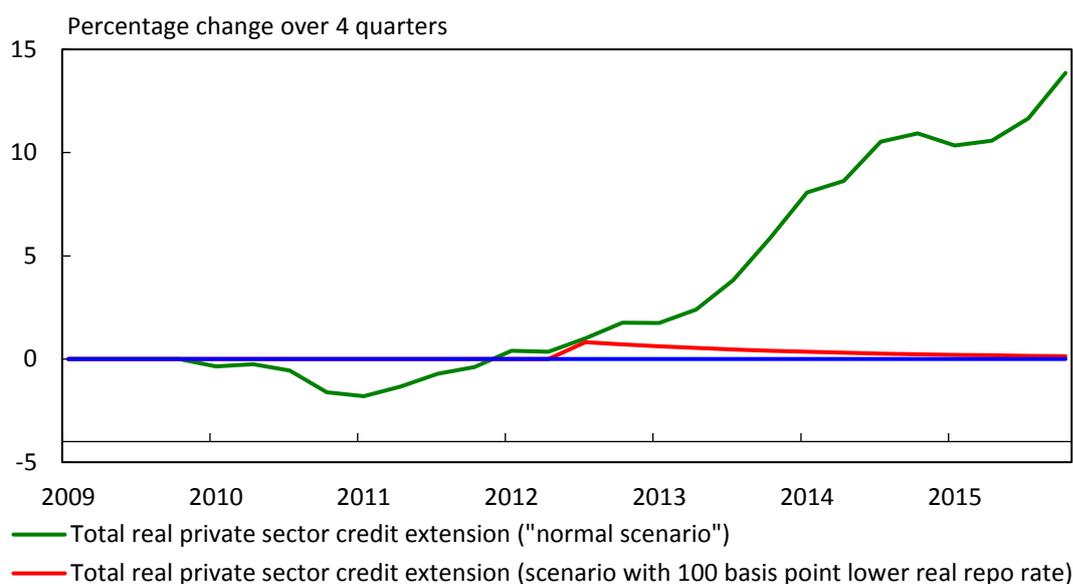pact falls to only 0,5 percentage points by the second quarter of 2013 and to less than 0,1 percentage points by the end of 2015. In terms of year-on-year credit growth, the 2012 impact is about 0,4 percentage points.

Figure 12 depicts both the scenario of a 100 basis point lower real repo rate from the first quarter of 2012 onwards and the earlier described "normal" scenario relative to the actual outcomes. It is clear that this more accommodative setting would have only marginally offset the impact from lower business confidence, slower private sector growth and the rising mortgage premium. In fact, according to the model, returning credit growth to "normal" would have required a decline in the real repo rate of 400 basis points[11], cumulatively, by the end of 2013, *ceteris paribus*.[12] Such a large fall in rates was never feasible; indeed, attempting it would probably have tightened financing conditions by ruining the credibility of monetary policy.

Figure 12: Comparing experiment with lower real repo rate and "normal" scenario with actual outcomes

Percentage change over 4 quarters

——Total real private sector credit extension ("normal scenario")

——Total real private sector credit extension (scenario with 100 basis point lower real repo rate)

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[10]   In the model, the real repo rate does not play a role in the equilibrium level of real credit growth, but only affects the dynamics (or the cycle) around the equilibrium. This is analogous to interest rates not determining potential GDP, but rather only affecting the cycle around potential GDP.

[11]   Obviously this can be a combination of a lower nominal repo rate and higher inflation.

[12]   This assumes the other factors remained fixed. Of course, GDP growth and business confidence would probably have shown a positive short-term response to rate cuts, boosting real credit (substantially). But even assuming these did some of the work, restoring 'normal' credit growth would still have required a real repo rate set several hundred basis points lower.

Credit growth under 'normal' circumstances

Based on the drivers identified above, an econometric model was estimated where real credit extension is determined by private sector real GDP growth, BER business confidence, the real repo rate and the mortgage rate premium. Figure 8 depicts the model prediction versus the actual outcomes, whilst more details on the econometric results is presented in Annexure A.

We then conduct an experiment to see what real credit extension growth would have been under "normal" circumstances. We define **"normal" circumstances** as those where the explanatory variables were constant at their respective averages over the 2001–2015 period; namely:

- BER business confidence at 54,1 index points

- Mortgage premium at 257 basis points

- Private sector real GDP growing at 3,0 per cent p.a. (seasonally adjusted and annualised)

- Real repo rate at 1,87 per cent

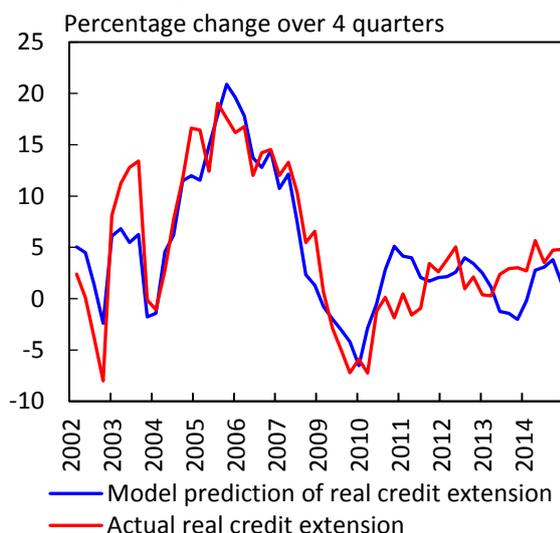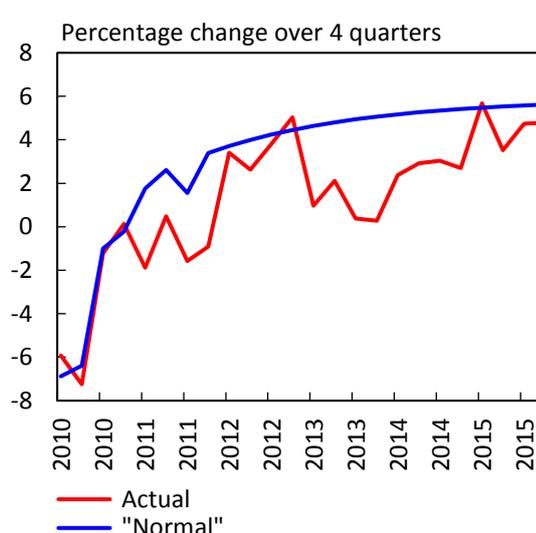**Figure 8: Model prediction versus actual credit extension**

Percentage change over 4 quarters

— Model prediction of real credit extension
— Actual real credit extension

Figure 9: Actual versus model predictions under "normal" circumstances

Percentage change over 4 quarters

— Actual
— "Normal"

As Figure 9 shows, where actual real credit extension growth averaged only 1,3 per cent p.a. over the 2010–2015 period, under the "normal" scenario it would have averaged 3,1 per cent p.a.

The contribution by each of the explanatory variables to the deviation from the actual outcome is depicted in Figure 10. To summarise, by the fourth quarter of 2015, the cumulative deviation between the actual and "normal" scenario reached 13,9 per cent, made up as follows (Figure 11):

- BER business confidence: 5,5 per cent (or **40,0 per cent** of the total deviation from actual)

- Private sector GDP: 4,8 per cent (or **34,4 per cent** of the total deviation from actual)

- Mortgage premium on repo: 4,4 per cent (or **31,9 per cent** of the total deviation from actual)

- Real repo rate: -0,9 per cent (or **-6,3 per cent** of the total deviation from actual)

Figure 10: Contributions of explanatory variables to deviation from actual outcome
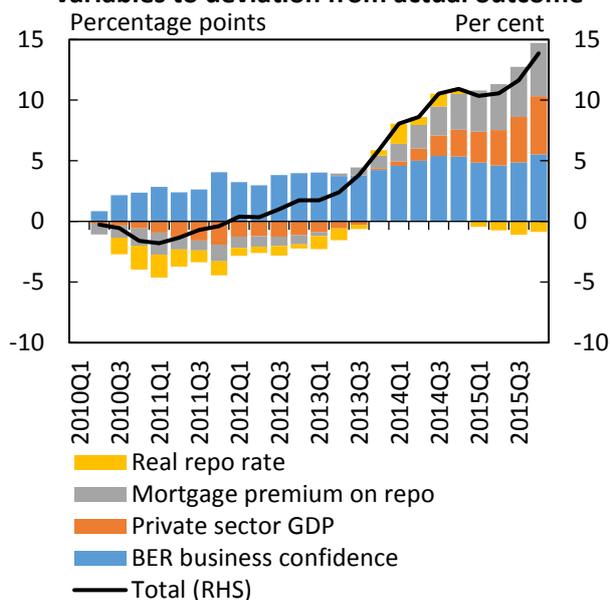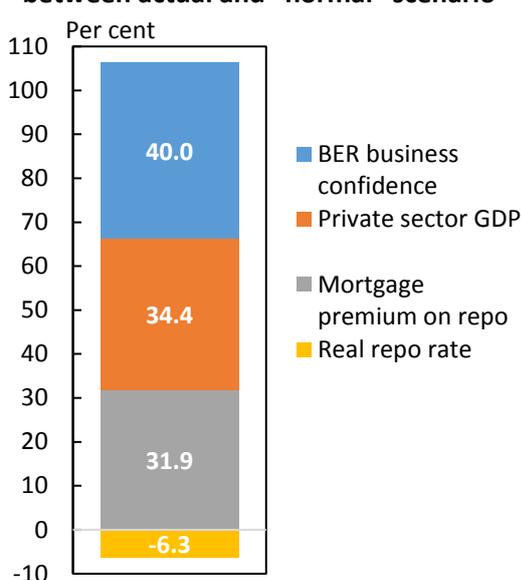

Figure 11: Cumulative deviation between actual and "normal" scenario

It is notable that due to the fact that the real repo was (often substantially) below the long run average in the post-2010 period, it has pushed the actual real credit extension marginally above where it would have been under "normal" circumstances. According to the estimated model, it would thus be difficult to argue that tight monetary policy over the post-2010 period has inhibited real credit extension growth. In fact, the opposite has happened – real credit extension growth has benefited from a real repo rate below the "normal" rate over the period.

We must emphasize that the model only measures the *direct* impact of the real repo rate on real credit growth outcomes. However, the real repo rate may also have had *indirect* effects on business confidence and real private sector GDP growth. To some extent, these would have been positive given how low the real rate has been since 2010. More recently, communications about a tightening cycle should have disincentivised borrowing to some degree – although the slow pace of rate increases might also have reassured borrowers that debt service cost growth would be contained. On the whole, the *indirect* effects are probably quite balanced.

Although further work on this may be required, our reading is that the slowdown in real credit growth is largely structural – with a higher mortgage premium as well as weaker business confidence and real private output suppressing real credit growth. Business confidence in particular might have been impacted by political and policy uncertainty, in turn negatively affecting investment and output. On the other hand, cyclical monetary policy was accommodative when compared to long run averages and has not meaningfully contributed to the post-2010 slowdown in real credit extension.

There was also greater emphasis on the regulatory environment in recent years which may have impacted not only on credit standards and banks' willingness to lend, but also the enthusiasm (optimism) of consumers to take up credit. For example, banks already started to phase in the requirements for Affordability Assessment, which were implemented as part of the revisions to the National Credit Regulations, in September 2015. It stipulates certain minimum living expense norms and credit providers have to ensure that the consumer has adequate income for the repayment with enough left to cover the stipulated minimum expenses.

Concluding remarks

A simple econometric model suggests that real credit growth in South Africa may be largely explained by the mortgage rate premium, the real repo rate, business confidence and real private sector output. Real credit growth averaged 1,3 per cent p.a. over the 2010–2015 period. According to the estimated model, if the drivers of credit extension had been at their "normal" levels (i.e. 15 year averages), credit growth would have been 3,1 per cent p.a. – i.e. nearly 2 percentage points p.a. higher over the period. The bulk of this difference relates to structural factors – a rising mortgage premium, below average private sector GDP growth and most importantly significantly lower business confidence than observed historically. This was only marginally countered by accommodative monetary policy, with the real repo rate set at levels slightly below long run averages in the post-2010 period.

Annexure A: Equation for real private sector credit extension

```
Dependent Variable: DLOG(FCREDP1)
Method: Least Squares (Gauss-Newton / Marquardt steps)
Date: 02/09/16   Time: 14:37
Sample: 2002Q1 2014Q4
Included observations: 52
Convergence achieved after 49 iterations
Coefficient covariance computed using outer product of gradients
DLOG(FCREDP1) =C(1)*(LOG(FCREDP1(-1)) - (C(2)*LOG(YP1(-1)) +C(3)
    *BCI(-1)/100 +C(4)*FMORTP(-0))) +C(5) +C(6)*D(FMORTP(-3)) +C(7)
    *D(FREPOR(-2))
```

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.129804	0.054490	-2.382179	0.0215
C(2)	1.913199	0.244965	7.810081	0.0000
C(3)	0.558946	0.302165	1.849805	0.0709
C(4)	-0.151388	0.067411	-2.245753	0.0297
C(5)	-1.712699	0.699676	-2.447848	0.0183
C(6)	-0.031611	0.013062	-2.420047	0.0196
C(7)	-0.008116	0.001939	-4.184635	0.0001

R-squared	0.558763	Mean dependent var	0.010800
Adjusted R-squared	0.499932	S.D. dependent var	0.027516
S.E. of regression	0.019458	Akaike info criterion	-4.916463
Sum squared resid	0.017038	Schwarz criterion	-4.653795
Log likelihood	134.8280	Hannan-Quinn criter.	-4.815762
F-statistic	9.497680	Durbin-Watson stat	2.103520
Prob(F-statistic)	0.000001		

Where:

FCREDP1   Real private sector credit extension (deflated with GDP deflator)

YP1   Real private sector GDP (i.e. GDP at market prices excluding government consumption and investment spending)

BCI   BER business confidence index

FMORTP   Mortgage premium on repo rate

FREPOR   *Ex ante* real repo rate (based on household consumption deflator six quarters ahead)