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Estimating a Credit Gap for Non-Financial Corporations in Malta

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Abstract

This paper documents two approaches that are used to estimate a credit gap, defined as the difference between actual developments in credit to non-financial corporations (NFCs) in Malta and a hypothetical path that would have been realised had the past historical relationships over the period 1995-2011 were to be maintained over the period 2012-2014.

Both methods suggest that a credit gap emerged in 2012, which widened significantly in 2013 and 2014. As at 2014Q3, the credit gap is estimated between €680 and €830 million.

In addition, the two approaches indicate that the credit gap will widen further over 2015-2016. Conditional on the projected path of NFC credit in the economic forecasts published by the Central Bank of Malta in December 2014, the credit gap is expected to widen to around €840 and €1,150 million by end-2016.

JEL Classification: E51, C5, G00.
Keywords: Credit supply, Econometric modelling, Malta.

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1. Introduction

The Maltese banking system emerged relatively unscathed from both the economic and financial crisis of 2009 and the European sovereign debt crisis of 2012. Post-crisis economic growth was robust, averaging 2.8% between 2010 and 2014 compared to 2.5% between 2001 and 2008. As at 2014Q3, the level of GDP stood around 11% above the pre-crisis peak; this compares favourably with developments in the euro area level, where GDP has still to reach pre-crisis levels. Developments in the real economy are also reflected in the labour market, with the unemployment rate in Malta currently standing at close to historical lows whereas in the euro area, the unemployment rate stands at more than 4 percentage points higher than it was before the crisis.

Despite this robust economic performance, credit growth to non-financial corporations (NFCs) has been on a downward trend since 2008 and turned negative since 2012. The stock of credit to NFCs in 2014Q2, at around €3.6 billion, was back at the level prevailing in mid-2008. As a ratio of GDP, NFC credit has declined to historical lows not seen from the mid-1990s. Credit has also declined in the euro area, both in annual growth terms and as a share of GDP (see figure 1).

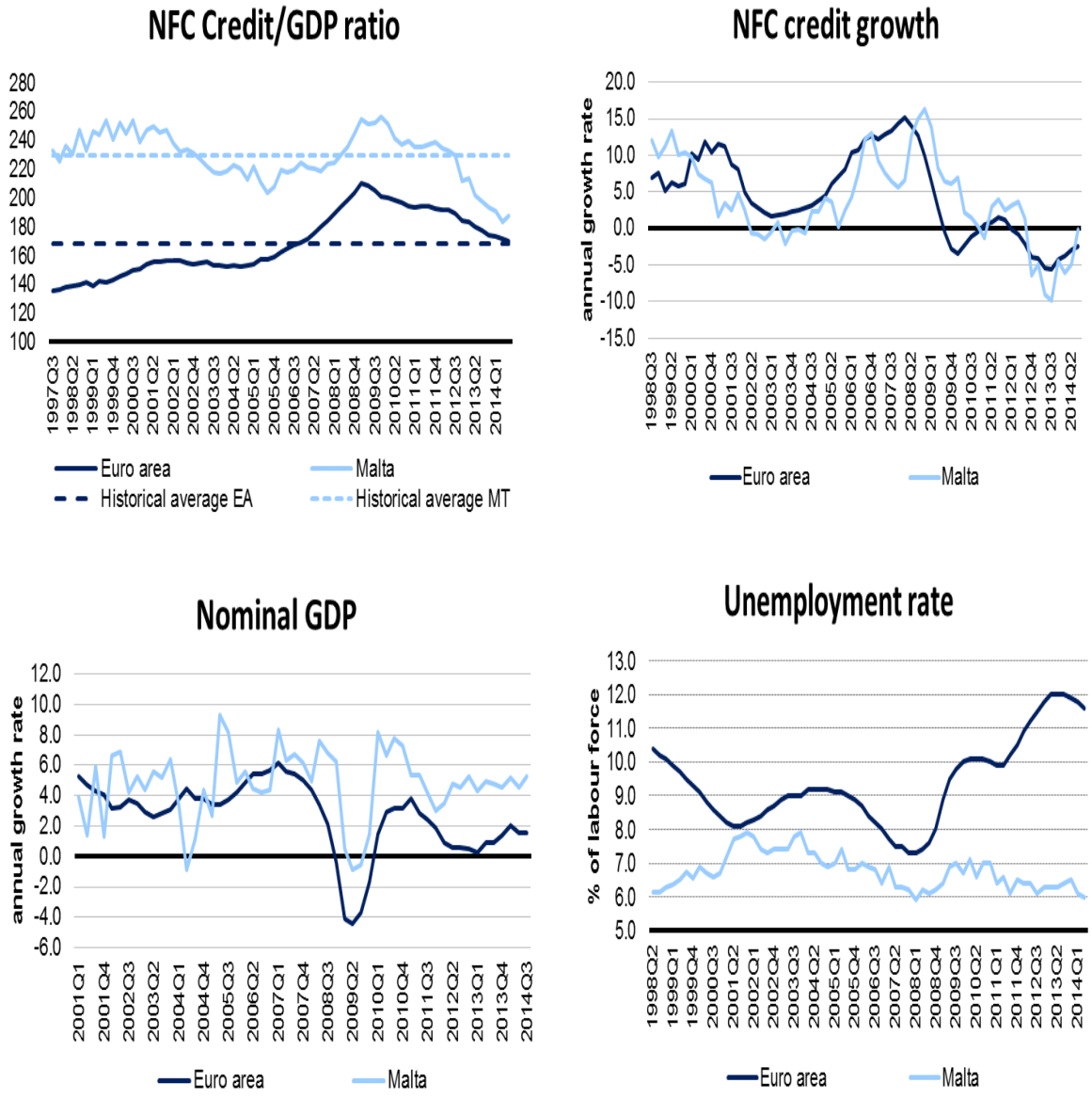
There are, however, important differences between the two economies. As a share of GDP, credit in the euro area is back to its historical average whereas in Malta, the ratio has dropped to historical lows. The extent of the decline in domestic credit to businesses is also surprising given the growth performance of the Maltese economy and its low unemployment rate. Finally, it is likely that the flow of bank credit to firms play a more important for the domestic economy, given its heavily dependence on bank financing and the absence of a deep and liquid capital market compared to other European economies.

From a sectoral perspective, the contraction in credit was mostly due to developments in construction, and to a lesser extent, to wholesale, retail and the hospitality industry. From a medium-term perspective, however, domestic banks have been gradually shifting their loan portfolio from NFCs towards households, with the share of the latter increasing from 37.8% in 2005 to 47.6% in 2014 (see Appendix A).

Against this background, this note calculates two estimates of a ‘credit gap’ based on a statistical and econometric model, respectively. The credit gap is defined as the difference between actual developments in credit to domestic NFCs and a hypothetical path that would have been realised had the past historical relationships over the period 1995-2011 were to

be maintained over the period 2012-2014. Projected estimates of these 'gaps' are also computed over the period 2015-2016 conditional on the projected path of NFC credit, as published by the Central Bank of Malta in its economic forecasts in December 2014.

Figure 1

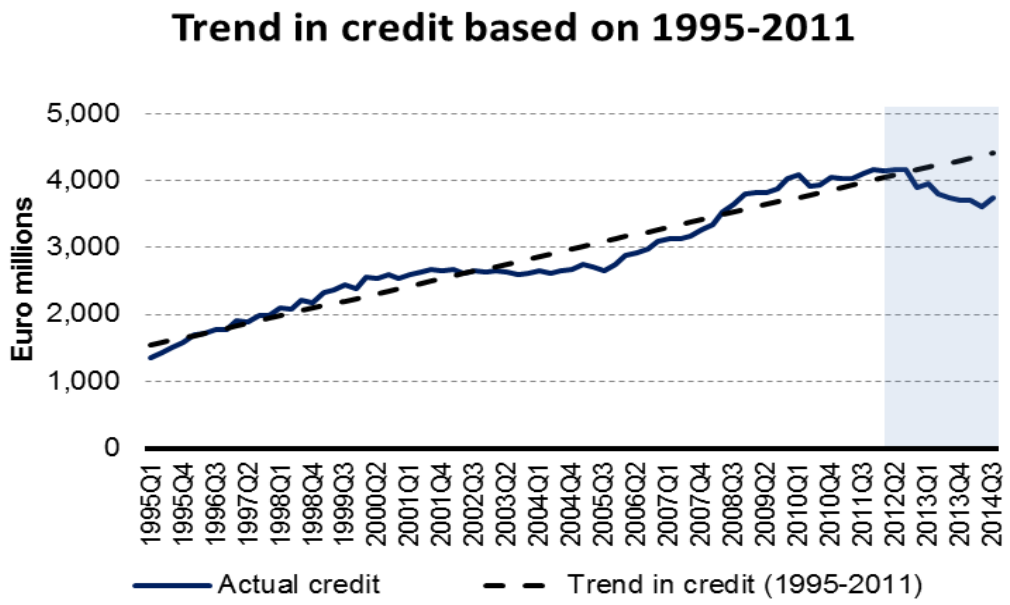


2. Statistical approach

The statistical approach is based on fitting a linear time trend to NFC credit over the period 1995-2011. This trend is then extended over the period 2012-2014 and the 'credit gap' is calculated by comparing the deviation of actual credit from the trend prevailing before the crisis.

Figure 2 shows that a significant gap in credit has developed since 2012. According to this approach, the credit gap stood at 14% in 2013Q4 (i.e. nominal credit was 14% lower than would have been had the historical trends been maintained in 2013), and has widened to 15% as at 2014Q3.

Figure 2



Source: Author's calculations

3. Econometric approach

One disadvantage of the statistical approach is that is does not take into consideration developments in other macroeconomic variables that could have an influence on bank credit to NFCs. In the econometric approach, therefore, we estimate a regression model for NFC credit using data over the period 1995Q1-2011Q4 and use the estimated regression to construct projections over the period 2012Q1-2014Q3 conditional on the path of the explanatory variables (see Table 1).

The explanatory variables consist of nominal GDP and non-performing loans. A priori, economic activity is expected to have a positive impact on bank credit while an increase in non-performing loans should have the opposite effect. An autoregressive term was included to capture the impact of other variables that are not included in the model. Other variables that could have an impact on NFC credit were also tested, such as the interest rate on NFC loans or house prices to reflect the impact of asset prices on firms' net worth, but these were not statistically significant at conventional levels. Statistical tests suggest that the residuals do not suffer from serial correlation, heteroscedasticity and are normally distributed around a mean of zero. Recursive estimates confirm that the equation's coefficients have remained stable over the estimation period.

From Table 1, one can calculate the short and long-run elasticities of NFC credit with respect to the explanatory variables. Holding everything constant, a 1% increase in nominal GDP will lead to an increase in NFC credit by 0.26% in the short run and by 0.57% in the long run. A 1% increase in problem loans lowers NFC credit by 0.05% in the short run and by 0.11% in the long run.

Table 1: Equation Results

Dependent Variable: DLOG(NFCCRED)
Method: Least Squares
Sample (adjusted): 1996Q2 2011Q4
Included observations: 63 after adjustments

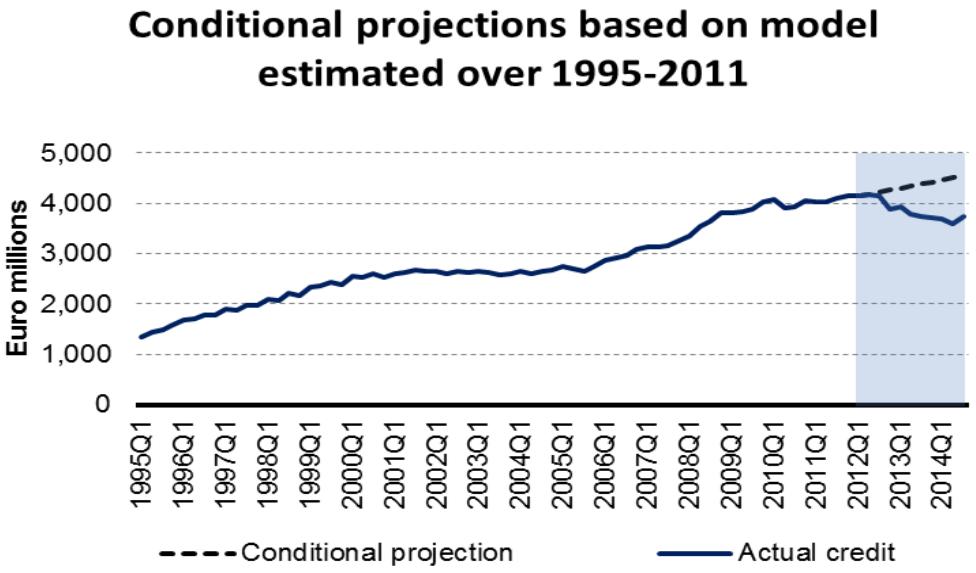
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.002502	0.003200	0.781900	0.4374
DLOG(GDP(-1))	0.264387	0.147723	1.789749	0.0786
DLOG(NFCNPL(-2))	-0.047563	0.021095	-2.254655	0.0279
DLOG(NFCCRED(-4))	0.538491	0.093301	5.771542	0.0000

R-squared	0.451422	Mean dependent var	0.014257
Adjusted R-squared	0.423528	S.D. dependent var	0.024820
S.E. of regression	0.018845	Akaike info criterion	-5.043794
Sum squared resid	0.020952	Schwarz criterion	-4.907722
Log likelihood	162.8795	Hannan-Quinn criter.	-4.990276
F-statistic	16.18360	Durbin-Watson stat	2.116489
Prob(F-statistic)	0.000000		

This model is used to make projections for NFC credit for the period 2012-2014 conditional on the path of the actual realizations of GDP and non-performing loans. Figure 3 shows that, on the basis of the historical relationship between the three variables, the model predicts a gradual increase in NFC credit as the strong increase in economic activity outweighs the

negative impact of the increase in non-performing loans. The credit gap according to the econometric model – the difference between actual NFC credit and the level predicted by the model – stood at 16% at the end of 2013 and widened to 18% in 2014Q3.[2]

Figure 3



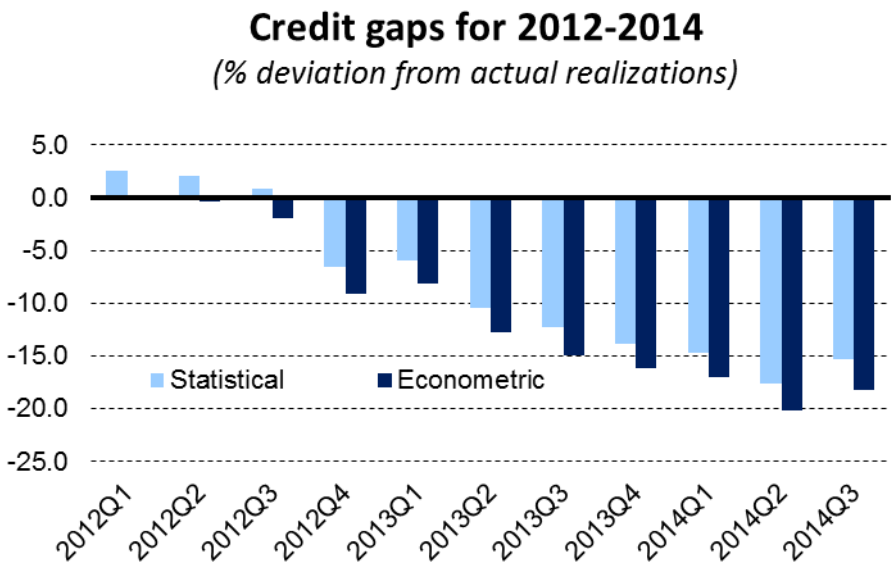
Source: Author's calculations

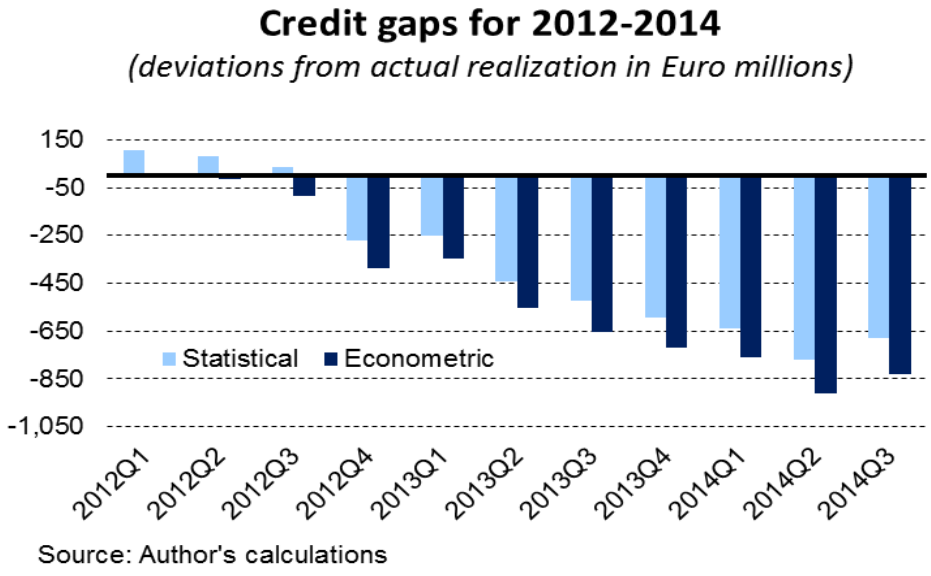
4. Summary of results

Figure 4 presents estimates of the NFC credit gap for the period 2012-2014 based on both the statistical and the econometric approaches. Both methods suggest that a substantial gap started to emerge at the end of 2012 and widened substantially in 2013 and 2014. Gap estimates average around 15%-18% in 2014Q3. In euro terms, the credit gap in 2014Q3 stood between €677 and €830 million.

[2] For comparison purposes, an econometric model was also specified for the euro area. A direct comparison, however, is not possible since a time series for non-performing loans was not available for the euro area. To account for this, a number of specifications have been tested, including GDP, investment and the unemployment rate, together with lags of the dependent variable. Depending on the specification, the 'credit gap' in euro area stood between 4% - 10% at the end of 2013 and widened to 6% - 13% as at 2014Q3. All the specifications therefore suggest that the 'credit gap' in the euro area, albeit significant, is smaller than the Maltese gap. The smaller gap in the euro area relative to the domestic one is due to the subdued level of activity and investment and the high level of unemployment, which lowers the demand for credit. Note, however, that the decline in loans could also be the result of a tighter supply of credit by banks, though this channel is not taken into consideration by the above specifications.

Figure 4





Source: Author's calculations

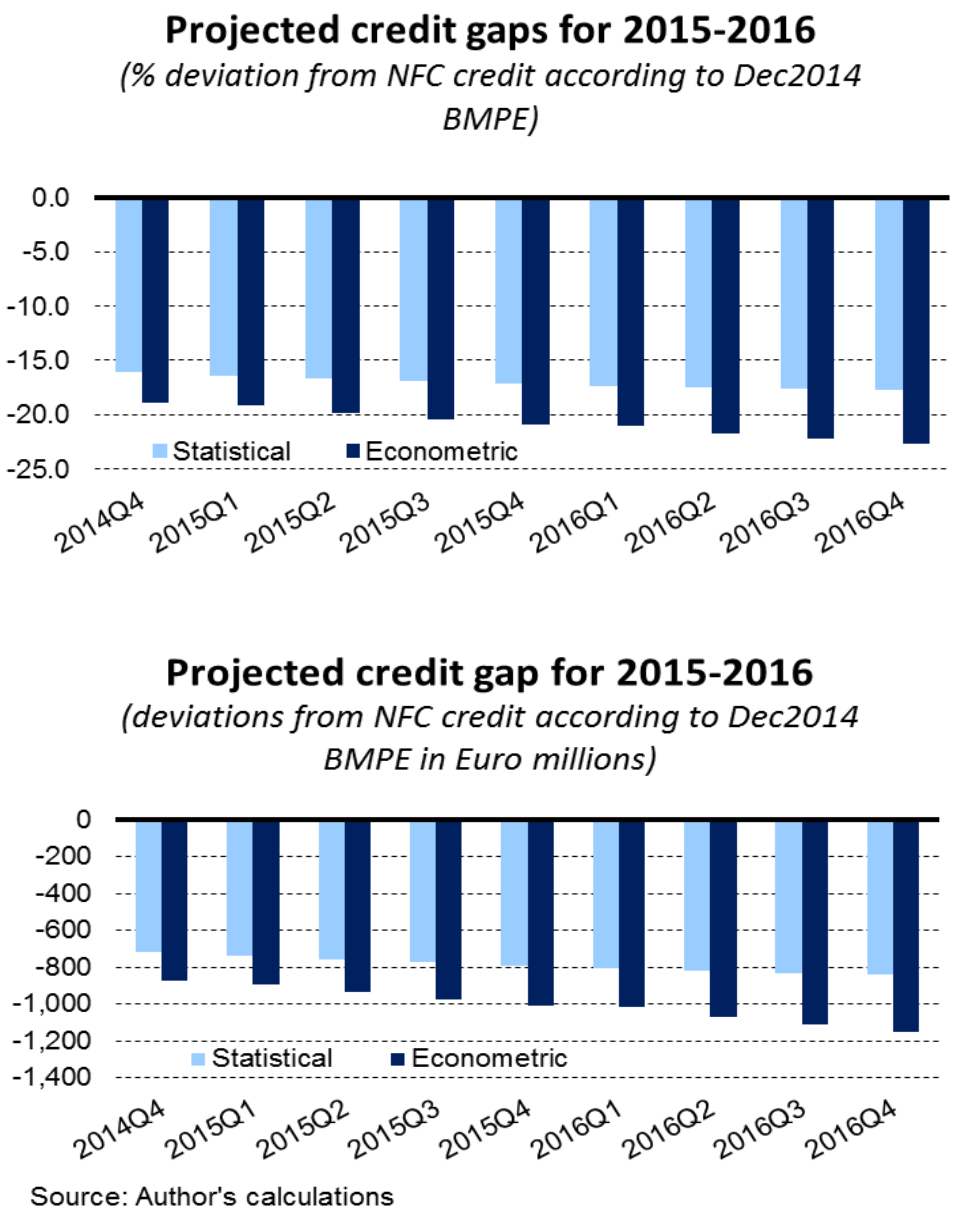
5. Projections for 2015 and 2016

Both methods can also be used to calculate projections for the credit gap over the next two years. For this exercise, projections of NFC credit and nominal GDP growth for 2015-2016 are based on those prepared by the Bank's Economic and Monetary Analysis Department for the December 2014 Broad Macroeconomic Projection Exercise (BMPE) forecast round. According to these forecasts, nominal GDP is expected to increase by 4.7% and 5.1% in 2015 and 2016, respectively. NFC credit is projected to increase by 2.3% in both 2015 and 2016. In the absence of available forecasts, projections for non-performing loans are assumed to remain unchanged at the level prevailing in 2014Q3.

The projected credit gap for 2015-2016 is calculated by comparing developments in NFC credit from the December 2014 BMPE forecasts with the projections for NFC credit derived from the statistical and econometric methods. The results of the credit gap for 2015 and 2016 are illustrated in figure 5.

Both methods indicate that the credit gap will continue to widen over the next two years. Conditional on the projected path of NFC credit in the December 2014 BMPE forecasts, the credit gap is expected to widen to around €790 and €1,000 million by end-2015 and between €840 and €1,150 million by end-2016.

Figure 5



Source: Author's calculations

6. Conclusion

Despite the resilient performance of the domestic economy, credit to the private sector has been on a downward trend in recent years, driven mainly by developments in loans to NFCs. From a sectoral perspective, the contraction in credit was mostly due to developments in construction, and to a lesser extent, to wholesale, retail and the hospitality industry. From a medium-term perspective, however, domestic banks have been gradually shifting their loan

portfolio from NFCs towards households, with the share of the latter increasing from 37.8% in 2005 to 47.6% in 2014.

The decline in bank credit can be a combination of both demand and supply side factors. Evidence suggests that changes in the banking sector landscape, higher pricing of loans and somewhat tighter credit conditions, all of which supply related, have played an important role. In addition, the interest rate pass-through to lending rates to NFCs has declined after the crisis, with estimates suggesting that only around 50% of the ECB rate cuts since September 2008 have been transmitted to domestic interest rates to businesses.[3]

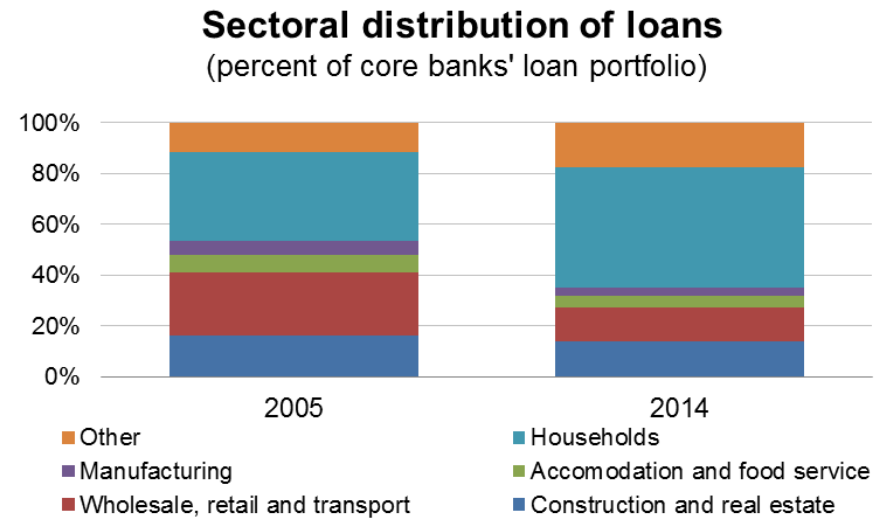
Estimates of the credit gaps outlined in this paper are a source of concern for a country like Malta where the overwhelming majority of businesses are micro enterprises or SMEs, which, in the absence of a deep and liquid capital market and without the access to external financing from parent companies, are generally more reliant on bank financing than larger firms. If banks reduce their exposure to certain business lines, due perhaps to the pressures of a more difficult regulatory environment, to start-ups, SMEs or long-term financing of infrastructure projects, this could ultimately have an adverse impact on the economy's supply potential.

[3] Micallef and Gauci (2014), "Interest rate pass-through in Malta", article published in Central Bank of Malta Quarterly Review 2014:1.

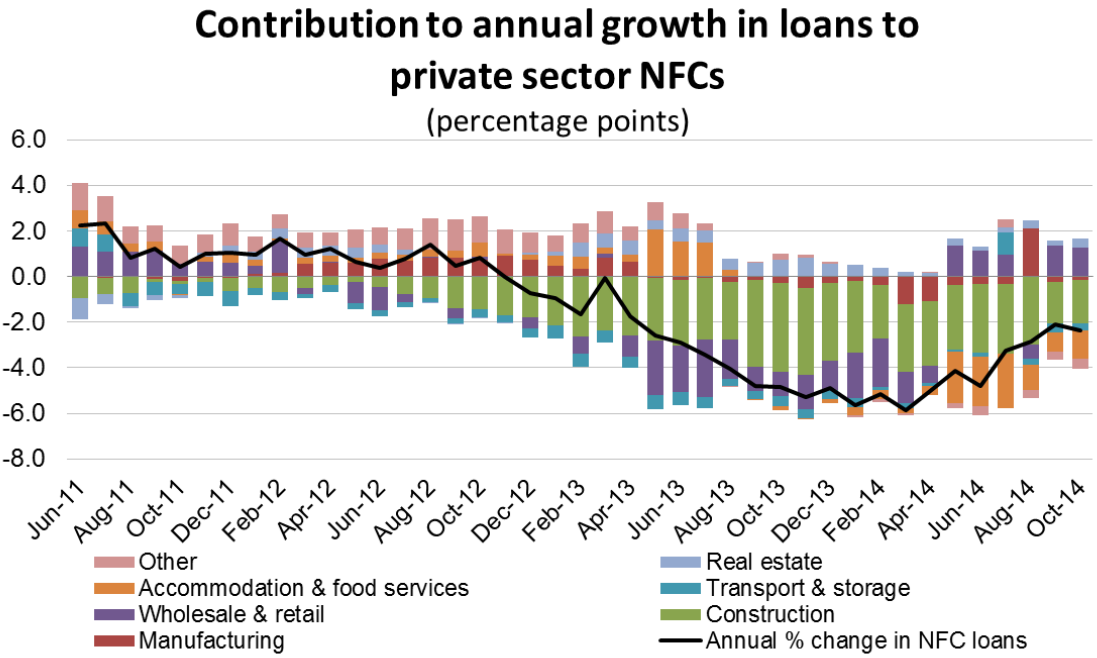
References

Micallef, B. & Gauci, T. (2014), “Interest rate pass-through in Malta”, Central Bank of Malta Quarterly Review 2014:1.

Appendix A: Sectoral distribution of NFC loans



Source: Central Bank of Malta



Source: Central Bank of Malta