



ESRI Special Article

Credit Requirements for Irish Firms in the Economic Recovery

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Abstract

This article examines the outlook for bank credit amongst Irish non-financial corporations, and small and medium enterprises in particular. Taking into account different assumptions about the path of overall economic growth and sector-level output, we expect that the total credit stock will return to a stable level of approximately 40 per cent of GDP, similar to the level that prevailed prior to the credit expansion of the mid-2000s. At a sectoral level, a reduction in the share of credit accounted for by the Property sector is expected and credit growth mainly accounted for by non-Property firms.

Introduction

Following the financial crisis of 2007-08, one of the most pressing challenges for macroeconomic policymakers is to achieve a better understanding of the relationship between the real economy and the financial sector. Significant changes in international, wholesale finance markets, particularly following the creation of the euro, enabled financial institutions in certain jurisdictions to greatly increase the provision of credit to the real economy. However, this large outward shift in the credit supply schedule precipitated an unsustainable level of activity in certain parts of the real economy as well as profound financial stability difficulties.

The open nature of the Irish economy ensures that international capital can flow in and out of the domestic financial sector, thereby giving rise to the possibility of substantial fluctuations in the level of credit being provided. Thus it is imperative that a series of quantitative tools be developed which can assess the demand for credit in the Irish economy. This is particularly the case as economic growth returns to the Irish economy. In this paper we present two different modelling strategies which look at possible paths for credit demand amongst Irish firms, in particular for the small and medium sized enterprises (SMEs) that comprise the bulk of Irish firms and employment. By generating a benchmark of expected credit levels in the economy, it is possible to gauge how well the banking sector

¹ The authors would like to acknowledge the comments of an anonymous referee on a previous draft. Any remaining errors are the responsibility of the authors.

has recovered and to estimate whether credit levels are sustainable on the basis of activity levels within the real economy.

An additional reason to assess the level of credit in the economy is the increasing use of certain macro-prudential policy levers in an institutional context. For example, Basel III² uses the gap between the credit-to-GDP ratio and its long-term trend in a country as a guide for setting countercyclical capital buffers for banks in that economy.³ In order to calibrate these levers properly, it is essential to have an understanding of both the likely determinants of credit and future possible trends in the credit requirements of the economy in question.

We use two different approaches to forecast credit stocks over the period 2014 to 2020.

1. We use a macroeconomic model of the Irish banking sector to model supply and demand simultaneously.
2. We use sectoral data to estimate a long-run relationship between each sector's credit and output. We then apply an error-correction model to forecast how these will evolve over time taking into account the current over- or under- leverage rates of the different sectors.

Complementing the aggregate model with a sectoral level approach is informative as it provides an increased degree of granularity in assessing the role of credit in an economy. For example, over the period 2000–2007, the level of credit issued in the Irish economy rose sharply; however, it was primarily concentrated in the construction sector. This focus on property lending arguably led to other sectors being “crowded out” in terms of bank lending. Therefore, the overall national figure can mask significant inter-sectoral differences.

It is important to note that in both approaches the level of economic activity is predetermined and the associated level of credit demand is then estimated as a function of this output. We do not allow, for example, for the possibility that credit growth in of itself could lead to an increase in economic activity. In this we are explicitly assuming that, over the medium-term, lending practices in the Irish economy will be of a more traditional, conservative nature.

² The Basel III framework has been developed by the Bank of International Settlements in Basel, Switzerland and adopted by a variety of international regulatory bodies. See Drehmann and Tsatsaronis (2014) for details.

³ See Kelly, McQuinn and Stuart (2011) for an appraisal of this rule in an Irish context.

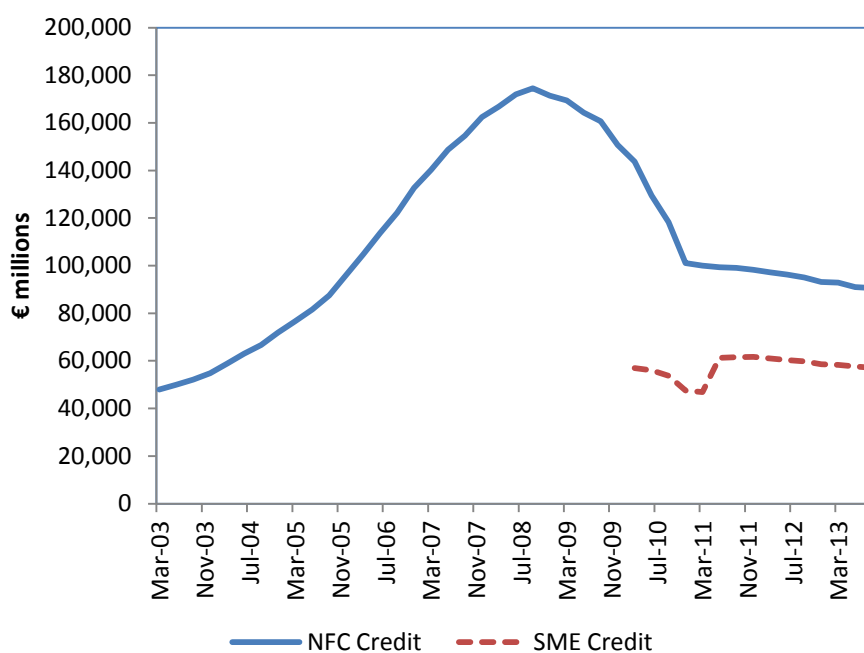
We take three forecast scenarios for GDP and sector output from the ESRI *Medium-Term Review 2013-2020* (FitzGerald and Kearney, 2013) to give a range of possible paths for credit depending on the outturns for the economy. Both the aggregate and sectoral approaches give substantially similar results with total credit stocks estimated to remain relatively stable at their current levels over the near term, but with a re-orientation of lending away from property towards the expansion of credit in other sectors. The result is a return to a ratio of non-financial firm credit to GDP of approximately 40 per cent, close to the level observed prior to the dramatic expansion of credit in the early 2000s. This compares to a high point of credit to GDP of 106 per cent in 2008, which has since reduced to 60 per cent in the most recent figures for 2013.

Recent Trends in Credit Extension to the Irish Economy

The dataset we use is the stock of non-financial domestic firm credit taken from the Central Bank of Ireland. These data are available from 1970 onwards. Ideally, it would be optimal to use data on the real value of new loans advanced to each sector; however, the only data available at a sectoral level relate to the stock of credit. It is necessary to generate the initial forecasts using data for all non-financial firms to establish relationships between credit and other variables because a separate series to distinguish SME credit from the total stock is not available prior to 2010. Using the current share of SME loans in the total, we can rescale our forecasts for total firm lending to generate the implications for SMEs.

The evolution of Irish domestic firm credit for all non-financial corporations (NFCs) and SMEs is shown in Figure 1, which focuses on the period from 2003 to 2013. This shows the dramatic increase in credit, which tripled between 2003 and the peak reached in 2008. The SME sector's credit stock has been at a relatively stable level of just under €60 billion since the series was introduced in March 2010 so we are unable to identify if the boom-bust pattern was more or less pronounced for these firms compared to the total.

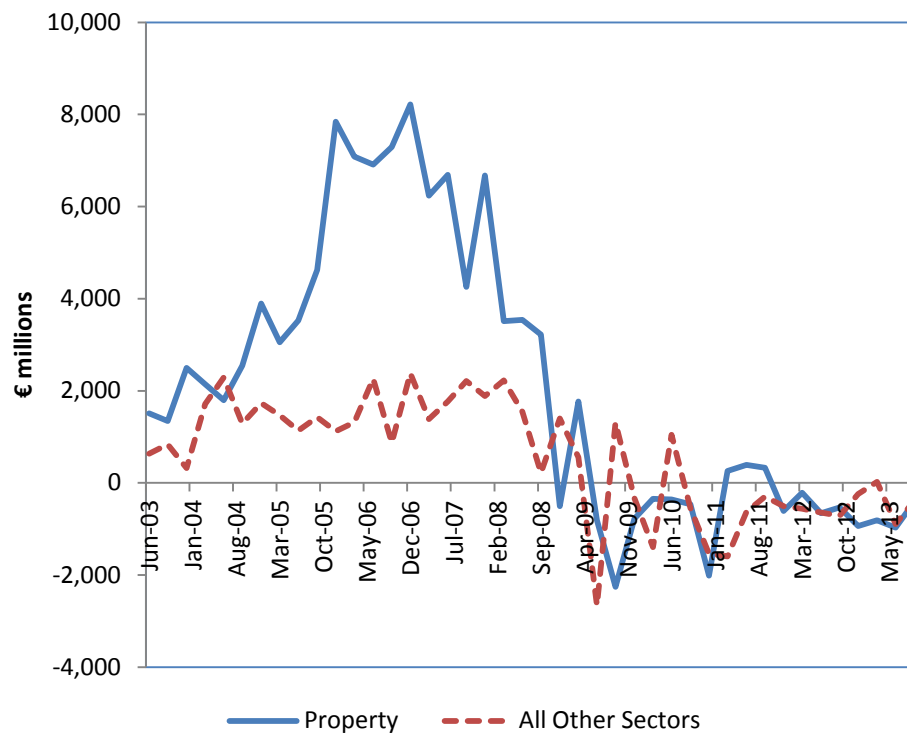
FIGURE 1 Domestic Firm Credit 2003-2014 (Excluding Financial Intermediation)



The growth and decline in credit can also be seen in the transactions shown in Figure 2. This separates credit into property lending (broadly defined as including both construction and real estate) and all other lending. This shows a clear link between the property sector boom and overall firm credit, with transactions in the property sector outweighing all other lending by a factor of three at the height of the boom. Since late 2008, the transactions have been negative for property and other sectors, indicating broadly that more credit is being paid off than is being extended.⁴ Five years of negative transactions indicates that a considerable degree of deleveraging has been undertaken by the Irish financial institutions. This raises concerns about the extent to which credit might be constrained for viable businesses if banks remain focused on unravelling the legacy debt built up in the boom as the economic recovery takes hold.

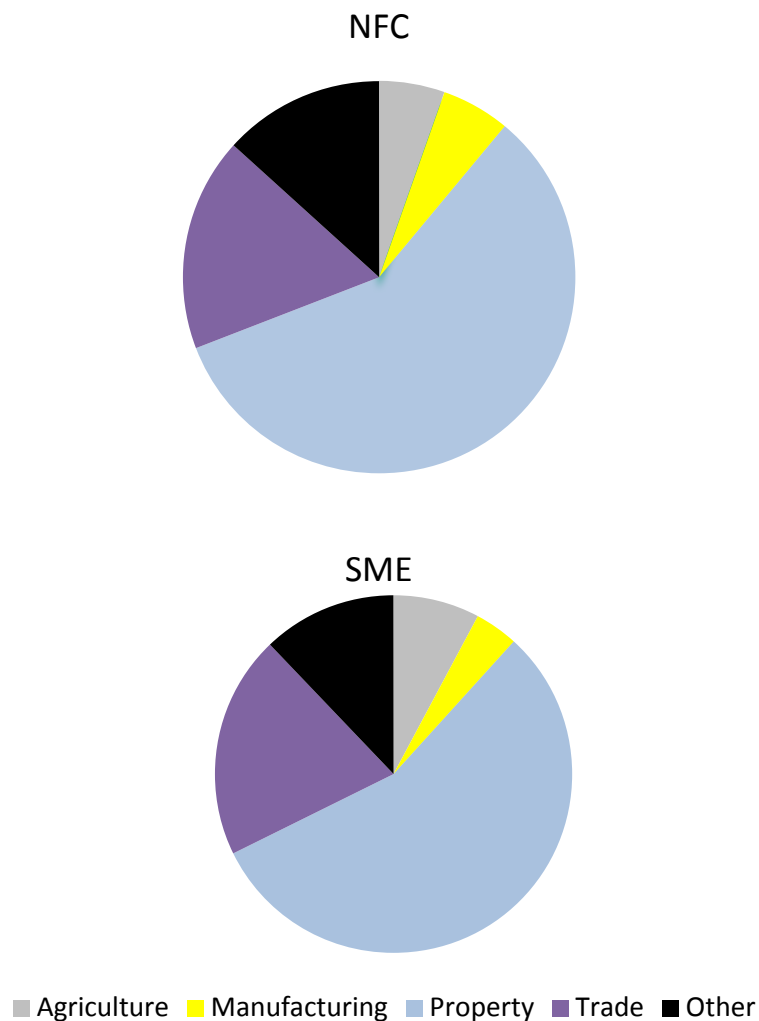
⁴ The transactions series is calculated from quarterly differences in outstanding amounts which are adjusted for reclassifications, other revaluations, exchange rate variations and any other changes which do not arise from transactions. Information on the credit data series and definitions is available from the Central Bank website at: http://www.centralbank.ie/polstats/stats/cmab/Documents/Business_Credit_and_Deposits_Explanatory%20Notes.pdf

FIGURE 2 NFC Credit Transactions



The dominant role of the property sector in total NFC and SME credit can be seen in Figure 3, which shows the sectoral shares of credit as at the end of 2013. The sector shares are almost identical for total firm and SME credit stocks. Property makes up 58 per cent of total firm credit and 56 per cent of SME credit. The next largest sector is trade and hospitality which accounts for 18 per cent of total firm credit. Agriculture and manufacturing each account for approximately 5.5 per cent of total NFC credit, but agriculture is a slightly higher proportion of SME lending at close to 8 per cent. The “other” group includes a range of different smaller sectors, primarily other services and communications. Close to 13 per cent of credit is currently extended to this category of firms.

FIGURE 3 Sectoral Credit Shares (2013)



We consider three different scenarios for the path of the economy as the main inputs to the forecasting exercise. These are taken from the ESRI's *Medium-Term Review 2013-2020* (FitzGerald and Kearney, 2013) and the main elements are summarised in Table 1. The scenarios are based on different speeds of recovery: the first of these is a "Recovery" scenario that returns the economy to its historic average growth rate of 4 per cent by 2015, resulting in a gradual decline in unemployment to 5.6 per cent by 2020. The second scenario is one of "Delayed Adjustment", where it takes until 2017 for GDP growth to get close to 3 per cent (due in large part to continued constraints in the credit market) and the third scenario is a "Stagnation" alternative in which GDP growth remains below 2 per cent for the entire period in the case where the external economy is hit with further shocks that have a knock-on negative effect on Irish recovery.

TABLE 1 Macroeconomic Scenarios

	2013	2014	2015	2016	2017	2018	2015-2020
	Recovery Scenario						
GDP growth %	1.7	3	4	4.1	4.2	3.7	4
Deficit (% GDP)	7.3	5	3.2	1.2	0.4	-0.3	-1
Unemployment	14	13.4	11.8	10.6	9.5	8.2	5.6
	Delayed Adjustment Scenario						
GDP growth %	1.8	1.9	2.7	1.9	2.7	3	3.3
Deficit (% GDP)	7.3	9.2	3.2	1.2	0.3	-0.4	-1
Unemployment	13.9	13.8	12.9	13.5	13.1	11.9	8.4
	Stagnation Scenario						
GDP growth %	1.7	3.5	1.3	1.1	2	0.8	1.4
Deficit (% GDP)	7.3	4.5	2.7	2.5	2	0.6	0.7
Unemployment	14.1	13.1	12.5	13.4	12.8	12.5	11.8

Source: FitzGerald and Kearney (2013).

Forecasts from Macro Model Approach

In modelling the volume of outstanding credit to non-financial corporations, a number of different approaches may be used. The first is to include the factors that affect the supply and demand for credit in a single equation with the volume of credit as the dependent variable. The second approach is to model the supply and demand for credit individually and assume that the interest rate is exogenous. Both of these approaches imply that the interest rate is not affected by the volume of lending, which is arguably an unlikely scenario in the case of the Irish banking sector given the changes in competition and in lending standards that occurred over the credit boom period.

The approach that we follow is to treat both the interest rate and the volume of credit as being simultaneously determined and to instrument for the interest rate in the credit demand and supply equations. We consider this to be a more accurate characterisation of the market for NFC credit in the Irish case. Therefore, we estimate the model as a system of simultaneous equations and use the supply factors as instruments for the interest rate in the demand equation. This captures the fact that changes in supply have an impact on the interest rate and hence on the volume of credit that is unrelated to demand but needs to be accounted for. Conversely, we use the demand factors as instruments for the interest rate in the supply equation to control for the impact of changes in demand on the interest rate and credit volumes.

The demand for credit by non-financial corporations is assumed to rise with economic activity, proxied by real GDP, and expect to fall as the real cost of credit increases.⁵ The *ex ante* real interest rate is the average interest rate on NFC credit minus (annualised) lagged quarterly inflation.⁶

On the supply side, the model assumes that lending to non-financial corporations depends on the return from lending (i.e., the interest rate charged), the cost of funding that banks face, the opportunity cost of lending to NFCs and a measure of the perceived riskiness associated with corporate lending. The funding environment experienced by the banking sector is controlled for through the inclusion of the volume of deposits and the money market rate. The former reflects the volume of retail funding that the bank holds, while the latter reflects the cost of alternative financing (via wholesale money markets).

The model assumes that banks maximise the risk-adjusted return on a portfolio of assets. The interest rate on ten-year government bonds, a measure of the long-term risk-free rate, is used to proxy the opportunity cost of lending to non-financial corporations. We use lagged annual GDP growth to capture macroeconomic risk implying that the financial health of corporations is positively correlated over time.

We estimate the model using quarterly data starting from the first quarter of 1985 up to the third quarter of 2003. After examining the stability of the estimates, the main reason for excluding later data is that preliminary analysis suggests that corporate lending becomes explosive when the post-2003 data are included. Interestingly, this occurs both when property lending is included in total NFC credit outstanding and when it is excluded. Another important reason for focusing on the pre-2003 period is that it captures the funding constraints that banks will be more likely to face in the future due to financial regulation and structural change in the banking system. The banking sector's reliance on retail deposits as the primary source of funding was greatly reduced in the 2003-2007 period as relatively cheap wholesale funding via money markets became more accessible.

Table 2 presents the results of the model with total credit to non-financial corporations (including property but excluding financial intermediation) as the dependent variable. The model is estimated using Three Stage Least Squares. In

⁵ The volume of NFC credit, GDP and deposits are in real per capita terms. The variables are deflated using the consumer expenditure deflator.

⁶ We also considered other measures of inflation expectations such as the lagged annual change in the consumer expenditure deflator and various moving averages. These alternative measures did materially affect our results.

terms of demand, the volume of credit is negatively related to the interest rate (long-run semi-elasticity of 0.03) and positively related to economic activity (long-run elasticity of 1.65).

On the supply side, the main determinant of the amount of credit that banks are willing to extend is the volume of deposits (long-run elasticity of 0.8) and the riskiness of lending, as approximated by the growth in real GDP (long-run elasticity of 2.5). As expected, credit supply is increasing in the interest rate on NFC credit and decreasing in the return on alternative investments and the cost of alternative sources of funding. These coefficients can now be used to produce forecasts for the volume of NFC credit for given paths of the model's exogenous variables using the three alternative growth scenarios discussed in the previous section.

TABLE 2 Supply and Demand for Total NFC Credit

Dependant Variable: Total NFC Credit Per Capita			
Demand	Supply		
Constant	-0.451***	Constant	-0.029
NFC Credit _{t-1}	0.925***	NFC Credit _{t-1}	0.966***
Interest Rate	-0.002**	Interest Rate	0.006***
Real GDP	0.123***	Long Rate	-0.004***
		Deposits	0.028***
		Mon. Mkt Rate	-0.004***
		Change Real GDP	0.087***
Adjusted R ²	0.996	Adjusted R ²	0.997
Sample	1985q1-2003q3	Sample	1985q1-2003q3

Source: Own estimates.

Figure 4 shows the path for NFC credit (including credit to the property sector) in the three scenarios. Total outstanding NFC credit is forecast to rise to €109 billion by 2020 in the Recovery scenario, €99 billion in the Delayed Adjustment scenario and €97 billion in the Stagnation scenario. The Stagnation and Delayed Adjustment scenarios give overlapping paths of credit evolution for the earlier years of the forecast horizon, until the pick-up in GDP in the Delayed Adjustment scenario. However, the overall variation in the credit stocks under the different scenarios remains relatively modest.

FIGURE 4 Path for Total NFC Credit – Macro Model

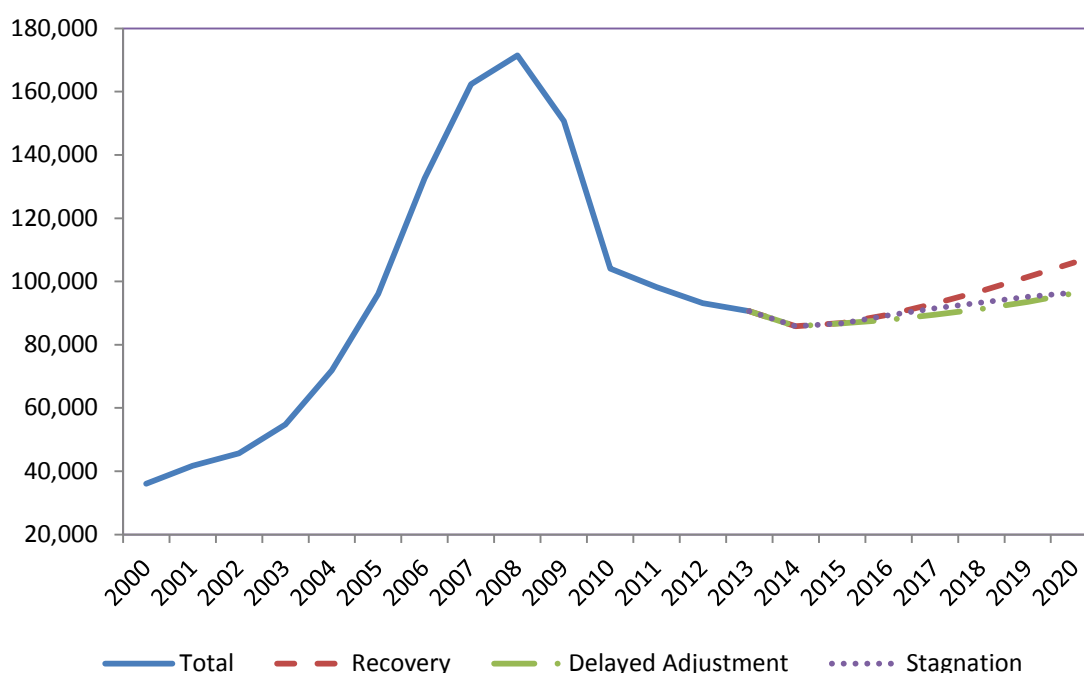


Table 3 presents the results of the model when property related lending is excluded from outstanding NFC credit. The main difference in the results relative to the model of total credit is a significantly lower coefficient on real GDP in the demand equation. This may pick up that non-property NFC debt could be affected by other factors such as global growth, whereas property demand would be driven primarily by domestic factors. The long-run elasticity of non-property NFC credit with respect of real GDP is 0.9 compared to 1.65 for total NFC credit. On the supply side, the long-run elasticities are also significantly lower for deposits (0.4 versus 0.8) and GDP growth (1.1 versus 2.5).

TABLE 3 Supply and Demand for NFC Credit Excluding Property Related Lending

Dependant Variable: Total NFC Credit per capita			
Demand	Supply		
Constant	-0.527***	Constant	-0.202***
NFC Credit _{t-1}	0.909***	NFC Credit _{t-1}	0.941***
Interest Rate	-0.002**	Interest Rate	0.005**
RGDP	0.084***	Long Rate	-0.003***
		Deposits	0.023***
		Mon. Mkt Rate	-0.004***
		ΔRGDP	0.066**
Adjusted R ²	0.991	Adjusted R ²	0.992
Sample	1985q1-2003q3	Sample	1985q1-2003q3

Source: Own estimates.

FIGURE 5 Path for NFC Credit Excluding Property – Macro Model

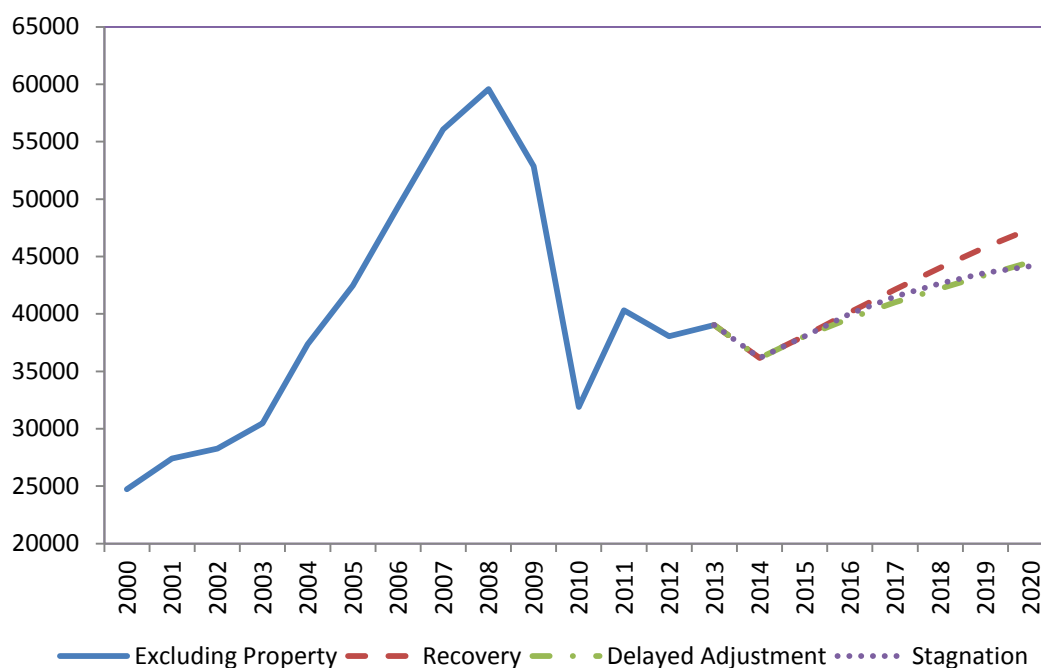


Figure 5 shows the forecast path for NFC credit excluding property related lending in the three scenarios. NFC credit rises to €49 billion by 2020 in the Recovery scenario, €45 billion in the Delayed Adjustment scenario and €44 billion in the Stagnation scenario. Table 4 presents the growth rates of credit generated by the forecasts above.

TABLE 4 Annual Credit Growth Rates

Credit Stock Growth Rates			
	Recovery	Delayed	Stagnation
Total			
2015	0.01	0.01	0.01
2016	0.03	0.01	
2017	0.04	0.02	0.02
2018	0.04	0.02	0.02
2019	0.05	0.02	0.02
2020	0.05	0.03	0.01
Excluding Property			
2015	0.05	0.05	0.05
2016	0.05	0.04	0.05
2017	0.05	0.04	0.04
2018	0.04	0.03	0.03
2019	0.04	0.03	0.02
2020	0.04	0.03	0.01

Sectoral Credit Forecasts

The banking model projections taking into account the simultaneity of supply and demand factors provide an outlook for the likely evolution of total credit in the Irish market. In this section, we explore how this credit may be allocated across the broad sectors of business activity. In order to do this, we follow the same methodology as Lydon, McQuinn, O'Brien and Sherman (2011) and link the demand for credit to output and other relevant factors in each sector. Unlike the previous section, this sector level approach focuses on the demand side, implicitly assuming that the available supply of credit will be allocated in line with demand across sectors.

There are two steps to generating the sector level projections for credit demand. The first step is to establish a long-run "fundamental" level of credit in each sector, which is specified as a function of output in the sector, total GDP in the economy and the interest rate. The current level of credit in each sector is then compared to this fundamental level to establish if the sector is under or over leveraged relative to historic norms. In comparing these results to those from the macroeconomic model in the previous section, it should be noted that it is not possible to endogenise credit supply at the sector level (as this relates to the allocation of credit by the banking sector rather than the determination of the amount available) so the analysis here is focused on the demand determinants only.

The second step generates a forecast for each sector using an error correction model, which is based on the current gap between the actual and fundamental levels of credit, which are assumed to unwind over time and developments in output scenarios. As in the previous section, we use three alternatives for growth in GDP and sector output based on the scenarios in the ESRI's *Medium-Term Review for 2013-2020*. Four sectors are explicitly modelled: these are Agriculture, Manufacturing, Property, Trade and Hospitality. This results in a residual category covering other services including private sector health and education, along with communications and utilities. Given the heterogeneity of this group and data limitations on sector output, the credit demand is not directly modelled. As the "other" category is mainly service-based, we make the assumption that it grows at the same rate as that projected for the Trade and Hospitality sector to generate a total credit level.

The long-run relationships between sector credit levels, sector output, total GDP and the interest rate are presented in Table 5. These are almost identical to the results of Lydon *et al.* (2011) with minor differences due to the addition of more recent data. Taking the fitted values from these estimates allows us to compare

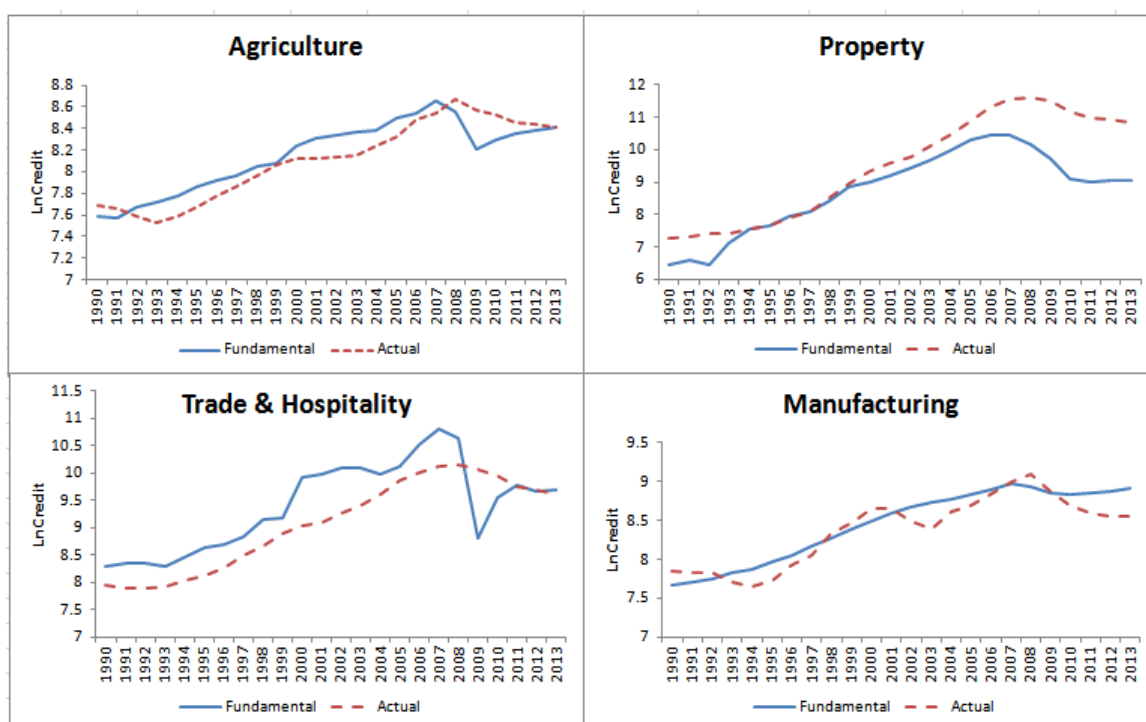
the current level of credit in each of the sectors to the level predicted by the historic relationship in the regression. The actual and fundamental levels of credit since 1990 in the four modelled sectors are shown in Figure 6 where divergences between the two lines can be interpreted as indicating some disequilibrium, either over or under extension of credit relative to the level expected by the output in the sector.

TABLE 5 Sector Long-Run Results

	Agriculture	Property	Trade	Manufacturing
Constant	-1.92	-1.31	-1.73	-0.56
Output	0.55	1.37	1.04	
GDP	0.49			0.79
Interest	0.00	-0.15	-0.01	
Adjusted R ²	0.96	0.93	0.99	0.94

Source: Own estimates.

FIGURE 6 Actual and Fundamental Credit 1990-2013



The expected fundamental level of credit in the Agriculture sector was above the actual level for much of the economic boom period, suggesting that credit expansion was focused in other sectors with Agriculture being somewhat credit constrained during the boom. Since 2008, this relationship between the actual and fundamental credit series reversed for a time and the two are currently approximately in equilibrium. A similar pattern applies to the Trade and Hospitality sector, where actual credit was below the long-run relationship for

most of the period graphed but which has seen a convergence to the fundamental level in the most recent years of the sample.

The expansion of credit in the Property sector was the dominant story of the economic boom throughout the early and mid-2000s and this sector-level estimation shows that actual levels of credit began to outstrip the fundamental relationship as early as 2000, with the gap widening up until 2010. More recently, both actual and fundamental levels of credit in the Property sector appear to have stabilised but a relatively large degree of leveraging is still evident in this sector. Manufacturing, on the other hand, currently shows a higher expected fundamental level of credit relative to the actual credit stocks, implying that there may be some credit constraints in this sector.

The short-run projections for credit use an error-correction framework, whereby any gaps between actual and fundamental credit estimated in the long-run estimates are expected to be unwound over time, with the speed at which this occurs captured by the ECM term in Table 6. The short-run results also control for lagged changes in credit, changes in sectoral output and total GDP.

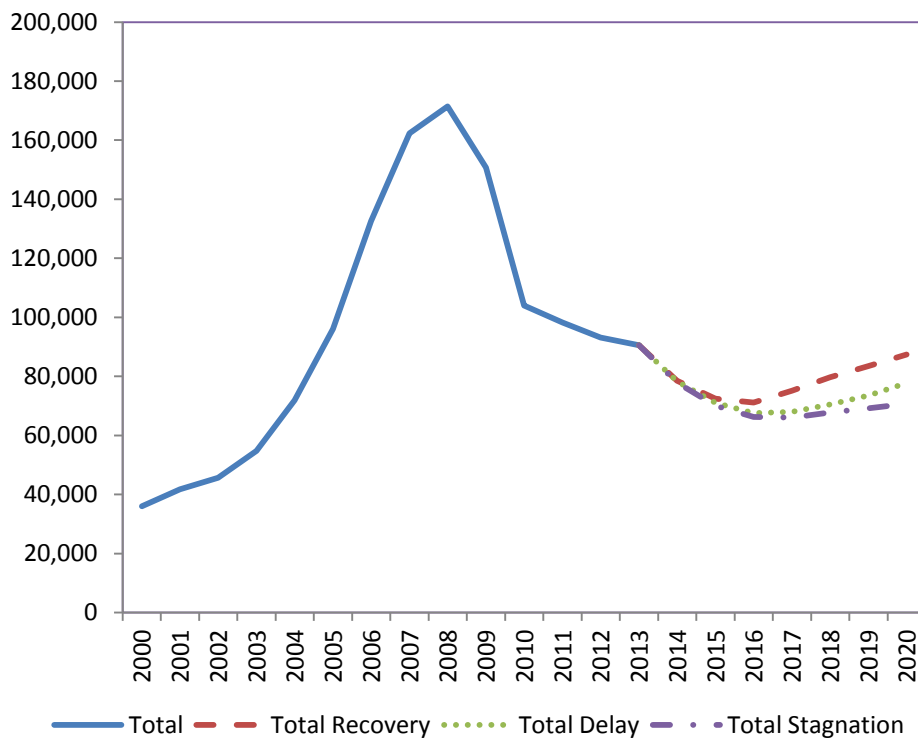
TABLE 6 Sector Short-Run Results

	Agriculture	Property	Trade	Manufacturing
ECM(t-1)	-0.13	-0.11	-0.26	-0.16
d.C(t-1)	0.53	0.46		0.26
d.O(t)		0.41	0.99	
d.O(t-1)	0.41			
d.Y(t-1)				0.69
d.R(t)	0.00			
Adjusted R ²	0.67	0.74	0.47	0.47

Source: Own estimates.

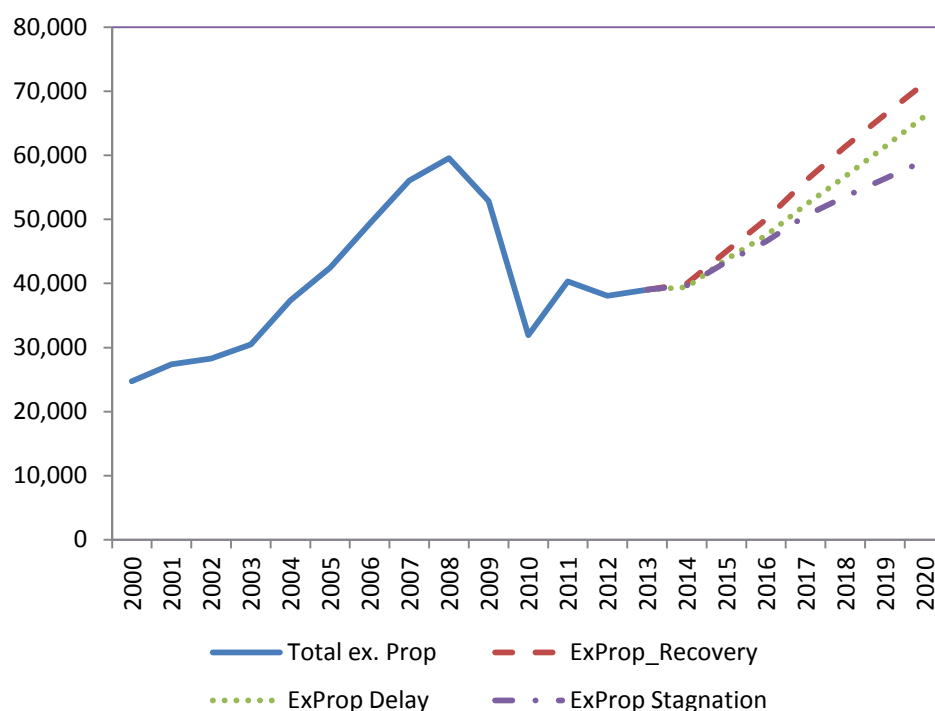
Combining these coefficients with the projected output and GDP paths from the *Medium-Term Review 2013-2020*, we generate credit forecasts for each of the sectors over the time horizon 2013 to 2020 for the different macroeconomic scenarios. Figure 7 shows the path of these forecast scenarios for all sectors combined and Figure 8 shows the forecasts when the Property sector is excluded.

FIGURE 7 Forecast Credit Stocks – All Sectors



The projections for total NFC credit using the sector error-correction approach are relatively flat at the current stock. Compared to the actual credit level of €90.5 billion in 2013, the Recovery scenario gives a continuation of the current path of credit decline up until 2016 (when it reaches €71 billion) before beginning to grow and returning to a level of approximately €87 billion by 2020. The delayed adjustment and stagnation scenarios follow similar paths but with a slower rate of growth, with the lower estimate in the stagnation scenario resulting in a credit stock of €70.5 billion in 2020. These numbers are lower than those projected in the banking model earlier but the broad evolution of credit under the different scenarios follows a similar path.

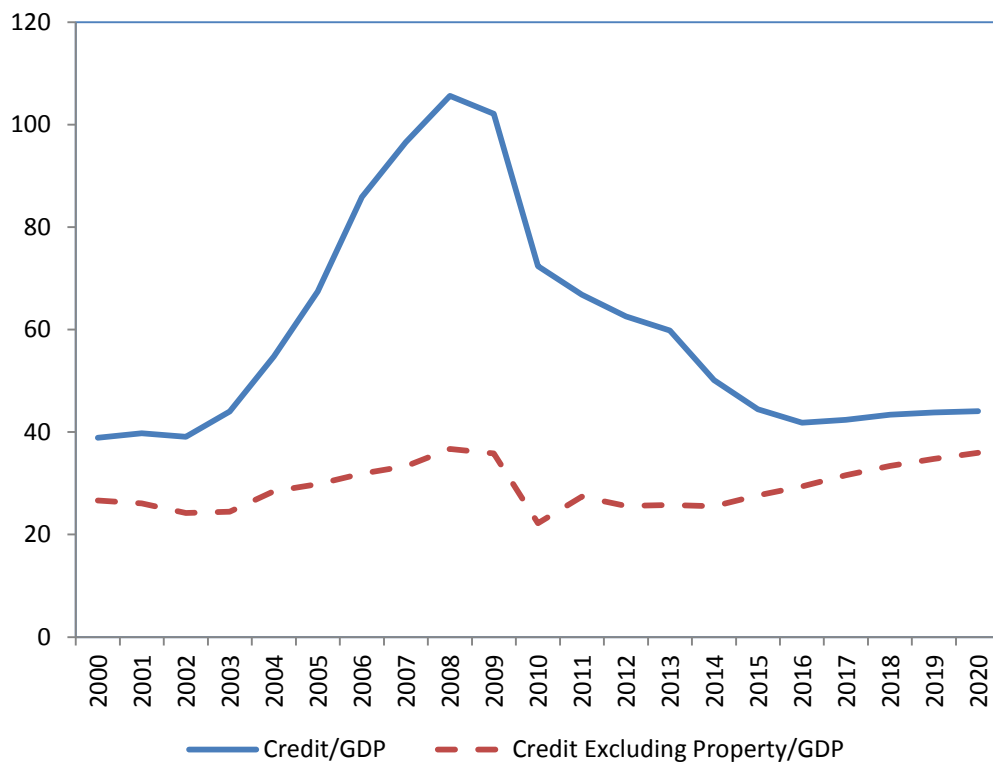
FIGURE 8 Forecast Credit – Excluding Property



The reason for the continued fall in credit in these projects is due to the unwinding of the high levels of outstanding credit in the Property sector. When we graph the expected credit stocks of all the other sectors excluding Property in Figure 8, we see a very different picture with credit levels expected to rise steadily in the rest of the economy. The 2013 credit stock for non-property NFCs was €39 billion. Under the Recovery scenario, this is expected to reach slightly over €71 billion by 2020. The lower-bound estimate under the Stagnation scenario would also see credit expansion in the non-property sectors albeit at a slower pace, reaching €59 billion in 2020.

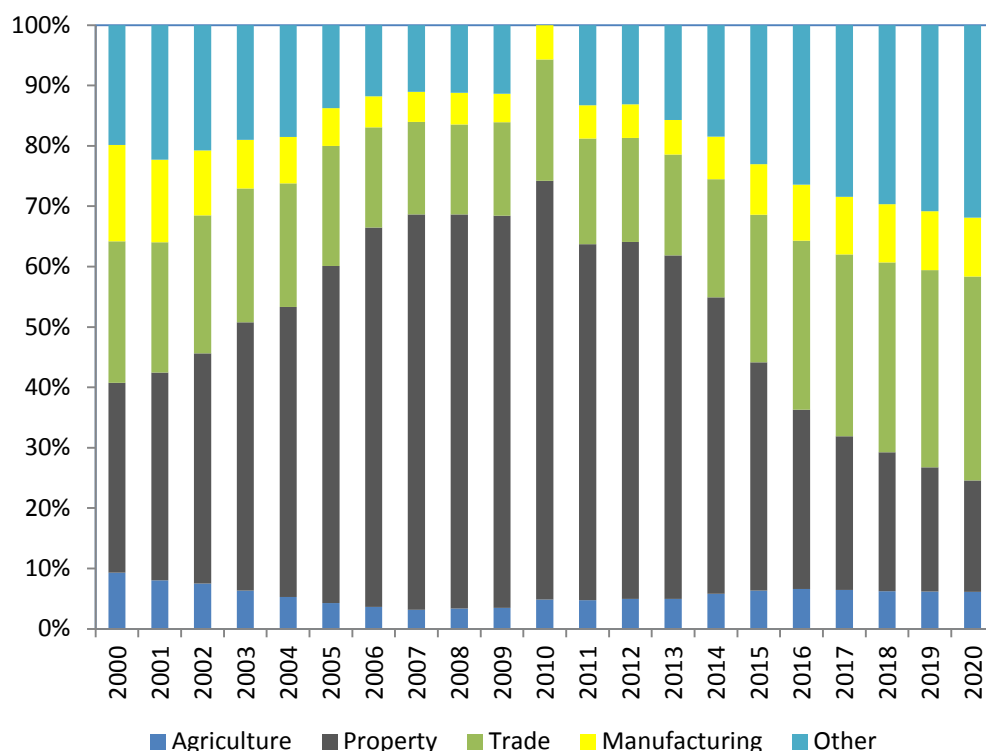
To place these numbers in context, Figure 9 graphs the expected Recovery scenario levels of credit (for all sectors and excluding Property) relative to GDP. This shows that the forecasted levels of credit in the NFC sector overall are expected to return to stabilise at a pre-boom level of approximately 40 per cent of GDP, with the subsequent growth in credit stocks evolving broadly in line with GDP. This graph also demonstrates the disproportionate contribution of the Property sector to the peak credit-to-GDP ratio, with credit in other sectors deviating only relatively slightly from the longer term relationship with GDP even during the mid-2000s. The peak of credit to GDP was 106 per cent reached in 2008 and this has reduced to 60 per cent in 2013.

FIGURE 9 Firm Credit Relative to GDP (%)



The key driver of the forecasted evolution of firm credit can be summarised as a re-orientation of credit away from Property and towards other sectors of the business economy, with these offsetting effects resulting in a return to a level of credit close to historic norms as a percentage of GDP. Figure 10 shows how the forecasts for the individual sectors are expected to evolve in terms of their contributions to the stock of total credit. Property lending formed the majority share of total NFC credit throughout the boom and this is expected to reduce in importance with larger shares of credit going to Trade and other services, along with modest increases in the share of Agriculture and Manufacturing.

FIGURE 10 Sector Contributions – Recovery Scenario



To establish long-run relationships and generate forecasts based on sector level output projections, we were obliged to use series for credit that related to the entire non-financial corporate sector. From a policy perspective, however, it is particularly the demand and availability of credit to the SME component of the economy that is of interest with larger firms typically having greater access to other sources of funding and less reliance on domestic banks. Figures 11 and 12, therefore, scale our earlier NFC forecasts to apply to the SME sector (including and excluding property respectively) assuming that the current relative shares of the SME and non-SME firms remains constant.

The broad paths of credit are by construction forecast to evolve along the same lines as total credit stocks. From a 2013 base of €58 billion in outstanding credit, these forecasts give a Recovery scenario stock of €56 billion in 2020. The range of values depending on the speed of economic growth goes from €45 billion in the Stagnation scenario, to €50 billion in the Delayed Adjustment scenario and an upper estimate of €56 billion by 2020.

As with total NFC credit, a re-balancing of credit shares across sectors is expected at the SME level, with credit stocks growing in all sectors other than Property. Current non-Property SME credit is in the order of €25 billion and this is expected

to reach between €38 billion and €46 billion by 2020 depending on the speed of overall economic growth.

FIGURE 11 Total SME Credit

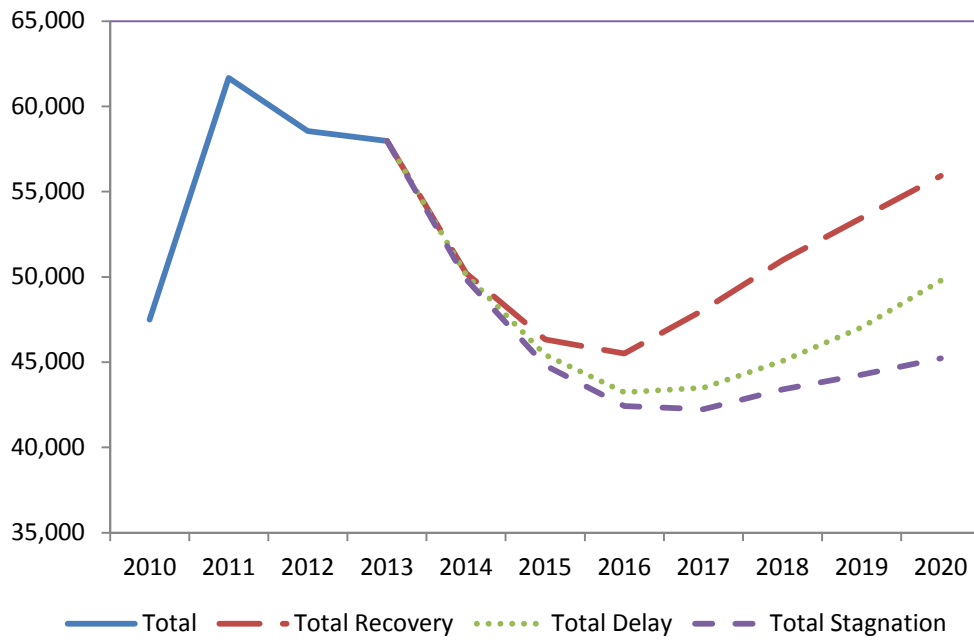
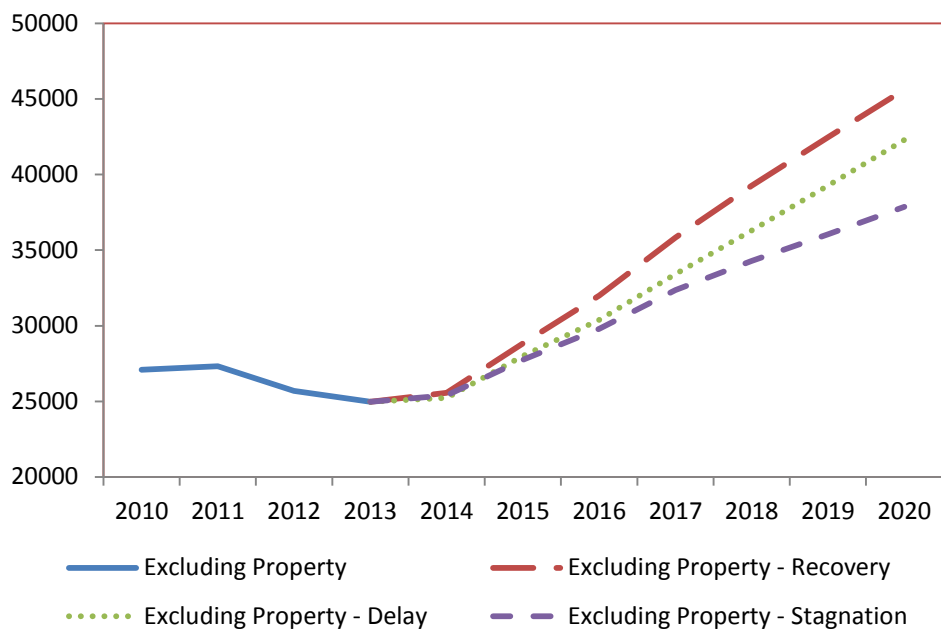


FIGURE 12 SME Excluding Property



Conclusion

Given the scale of difficulties which followed the credit-fuelled bubble experienced by the Irish economy, it is incumbent on policymakers and economic researchers alike to generate new quantitative tools for key financial stability issues. Understanding likely movements in the stock of credit is a key aspect of that challenge. Accordingly, this paper uses two different empirical approaches to examine the evolution of credit amongst Irish firms over the medium term. By linking credit requirements to forecasts of total and sector level output, we generate a range of estimates for credit stocks. These projections suggest that credit stocks for non-financial corporations and SMEs will stabilise and remain relatively flat in the near term.

Although we do not find that the total volume of firm credit is likely to grow significantly over the remainder of the decade, we do find that changes in sector shares of credit are likely given the historic relationships between sector output and credit. In particular, the current share of property lending in total credit remains above the long-run fundamental level and hence the property share of total credit is expected to decline reasonably considerably between now and 2020.

It is important to stress that this does not indicate that new lending will not occur in the property sector, as credit is still required and it is important that the deleveraging pressure in this sector does not result in credit constraints for viable projects. However, the current disproportionate share of credit allocated to this single sector is expected to unwind over time.

Overall credit growth, therefore, is expected to be driven by non-property sectors. Given the overwhelming reliance on residential lending during the boom period, it is important that the financial sector is in a position to evaluate and respond to viable commercial opportunities in other areas of the domestic economy. In particular, we note that the current level of credit extended to manufacturing firms is below our estimates of its fundamental level.

As with all forecasts of economic activity, there are a number of caveats to be attached to these projections. There is continued pressure on banks to deleverage and increase capital ratios which may constrain their ability to extend new credit. The changes in market structure in banking, particularly in terms of increased concentration, may have an effect on the supply of credit. On the demand side, firms that took on debt during the past decade may also be focused on deleveraging. Given the experiences of the financial crisis and subsequent recession, there is a possibility that the risk appetite for new credit may be diminished, on the side of both banks and firms.

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