From Finnish Great Depression to Great Recession

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The Finnish economy has experienced three major recessions over the last 25 years, all very different in nature. The turn of the century witnessed the bursting of the dot-com bubble in the 'Nokia economy'. The country was also severely hit by the global financial crisis of 2007–2008 and the 'Great Recession' that followed. However, the most serious episode was the prolonged contraction of the early 1990s, known in Finland as the 'Finnish Great Depression'.

The Finnish Great Depression began in early 1990, after several years of rapid economic expansion. The contraction lasted for almost four years. The cumulative drop in the country's real GDP from its peak in 4Q/1989 to trough in 1Q/1993 was 12.6%, the stock market fell by 67%, while the unemployment rate increased from 3.4% to 17.9%. It was one of the biggest contractions experienced by an industrialised economy since the Second World War, and comparable to the deep and prolonged recessions of many European countries during and after the 2007–2008 global financial crisis.

In this article, we use an empirical structural vector autoregression approach to identify different factors that could explain the Finnish business cycle, and the 1990–1993 contraction in particular. We estimate the model of a small open economy, in which we identify both real and financial shocks, from both the demand and the supply side. Shocks are identified by using state-of-the-art sign restrictions methodology.[1]

[1] See e.g. Rubio-Ramırez et al. (2010).

Our approach allows us to study the propagation mechanisms of the shocks and the role of macro-financial linkages. In comparison with earlier studies of the Finnish Great Depression, our approach allows us to quantify the relative importance of different factors.[2]

We find a considerable role for the collapse of Finnish–Soviet trade around 1991. However, this is not the whole story. Shocks that capture a collapsing banking sector and the asset price bust explain about half of the slowdown. Counterfactual simulations suggest that without shocks and transmission mechanisms stemming from the domestic financial sector to the real economy, the collapse of Finnish–Soviet trade would have had a considerably smaller impact on Finland's GDP. Moreover, a major asset price boom fuelling domestic demand was the key driver of GDP in the run-up to the crisis.

The 'Great Recession' in Finland was very different from the 'Great Depression'. The drop in GDP can be attributed solely to external shocks – an increase in stress on the global financial markets and a slump in global demand. A comparison of these two episodes lends strong

[2] The 1990s episode generated a number of alternative explanations to account for the depression. Financial liberalization that triggered vast capital inflows and fuelled stock and housing market bubbles has been pointed to as the initial culprit (Vihriälä, 1997) and led to a Fisherian debt-deflation spiral (Kiander and Vartia, 1996). However, the Finnish downturn was much more severe than that of Sweden after a somewhat similar credit boom. This led many to blame the depression on the breakdown of trade with the USSR in 1991 (Tarkka, 1994; Gorodnichenko et al., 2012). Other authors pointed to the defence of a fixed exchange rate that led to sky-high interest rates (Honkapohja and Koskela, 1999), similarly to Sweden.

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support to the view that financial factors matter for the real economy. Financial crises of domestic origin, possibly including a banking crisis and preceded by inflated asset prices and high debt levels in the private sector, have a protracted effect on the real economy and are followed by slow recoveries.

The rest of the article is organized as follows. In section 2, we introduce the model and discuss the identification of structural shocks. In section 3, we explain in detail the data used in estimation. In section 4, we discuss the historical shock decompositions and have a close look at the Finnish Great Depression. We also conduct some counterfactual simulations to assess the importance of financial factors to business cycle dynamics. Concluding remarks are given in section 5.

The model and sign restrictions

Our empirical strategy involves estimating a structural VAR model of a small open economy.[3] The eight variables that we choose can be divided into three main groups. The foreign bloc consists of two variables, i.e. a measure of global financial stress as well as external demand for Finnish exports. The second bloc consists of standard macro variables, i.e. real output, inflation and an interest rate measure. Finally, we include a group of three financial variables: asset prices, new bank loans to the private sector and bank loan losses.[4]

This set of variables allows us to identify four domestic shocks: aggregate demand and supply shocks, asset price shocks and loan supply shocks as well as two foreign ones: shocks to global financial stress and export demand shocks. The bi-variate foreign bloc is assumed to be fully independent of the domestic part, i.e. the Finnish economy does not affect foreign variables. Aggregate demand and supply shocks as well as asset price and loan supply shocks are identified by using a sign restrictions approach. Two of the shocks remain unidentified and can capture, for instance, monetary policy shocks.

Sign restrictions are set to the impulse response functions of the variables, summarized in Table 1. The sign of the response is required to hold on impact and for at least S 1 periods after the shock. The signs highlighted in red circles denote the minimum set of restrictions necessary to make the structural shocks identifiable from each other. All black signs are motivated by economic theory but are not necessary to distinguish the shocks from each other. Question marks denote cases in which the shock impact on the variable is either not clear or in which economic

[3] The methodology and more details of the model can be found in Gulan-Haavio-Kilponen (2014). In the research article, we conduct robustness experiments with an alternative model specification that includes a terms of trade variable and global demand, instead of a demand indicator of Finnish exports.

[4] We use quarterly data from 1Q/1986 until 4Q/2012. All series are stationary and, where appropriate, deflated by the GDP deflator. We use year-on-year (YoY) growth rates of the series, except for the interest rate measure, which is the difference between the bank lending rate and the short-term money market rate and loan losses and the global financial market stress indicator, which are measured in levels. The data on loan losses come from Pesola (2011) and from Vihriälä (1997), while the indicator of global stress is the level of the Composite Indicator of Systemic Stress (CISS), constructed by Hollo et al. (2012).

Table 1.

Sign resrictions on impulse response functions

	Real shocks		*Financial shocks*	
Variable	*Aggregate demand*	*Aggregate supply*	*Asset price*	*Loan supply*
GDP	⊕	⊕	⊕	⊕
Inflation	⊕	⊖	⊕	?
Asset prices	+	+	+	+
New bank loans	+	?	+	+
Interest rate spread	⊕	?	⊖	⊖
Loan losses	?	⊖	⊕	⊕

Source: Gulan – Haavio – Kilponen (2014).

theory delivers opposing mechanisms that may offset each other.

As an example, a positive loan supply shock stems from the sector of financial intermediaries. It may reflect changes in effective lending standards, which in turn may reflect changes in the regulatory environment. The key identifying assumption of this shock is that, as the availability of bank loans increases, lending rates go down, hence reducing the loan spread. However, ceteribus paribus, the amount of bad loans goes up.[5]

As another example, according to our interpretation, an asset price shock reflects asset price movements due to market exuberance or bubbles. A positive asset price shock will generate responses largely similar to demand shocks, stimulating both domestic demand and production through positive wealth effects. At the same time, as private sector balance sheets improve, loan spreads narrow. Narrower spreads should, in turn, increase the amount of new loans. Loan losses decrease mainly because of stronger balance sheets, but this drop can be reinforced by the Fisherian effect, in which higher price levels reduce the real burden of nominal loan contracts on debtors.

The impact on spreads allows us to distinguish the asset price shock from a standard aggregate demand shock. In the case of the latter, the loan spreads go up because of the directly higher demand for loans. The fact that positive asset price shocks decrease loan losses, in turn, allows us to distinguish an asset price shock from a loan supply shock.

[5] In order to capture the time lag between an increase in loan availability and the surge in banks' loan losses, we impose restrictions in such a way that loan losses are allowed to increase for only one period after an impact.

The results – financial factors matter

In this section we discuss the results by performing a historical shock decomposition of Finland's GDP growth rate. The historical decomposition tells how much each shock explains of fluctuations in the growth rate. We also simulate a counterfactual scenario by shutting down the effects of financial factors on the real economy in order to highlight the role of financial shocks in the Finnish business cycle.

Historical decomposition

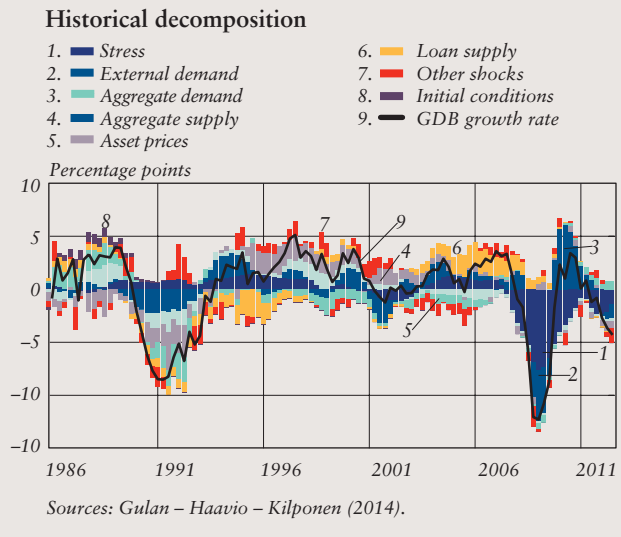
The results from the historical decomposition are presented in Chart 1. First, the accumulation of dark and medium blue bars indicates a strong role for external shocks. This applies both to fluctuations in demand for Finnish goods and in the transmission to Finland of turbulence on the international financial markets. The importance of external factors emphasizes the small open economy character of the Finnish economy. In fact, historical decomposition shows clearly that the sharp downturn in the Finnish economy during 2007–2008 (and, to some extent, the mild recession of 2001) was driven predominantly by exogenous factors. The Finnish Great Depression was, however, very different.

The historical decomposition presented in Chart 1 allows us to make an assessment of how much the collapse in Soviet trade contributed to the decline in Finnish GDP. The drop in demand from the USSR can be classed as a shock in external demand. However, a considerable part of the 'Soviet' sector of the Finnish economy became obsolete after 1991, as many production plants concentrated on Soviet markets had to shut down. Hence, the collapse of Soviet trade can also be thought of as capital obsolescence, such that the Finnish–Soviet trade collapse can in principle appear in the historical decomposition both as a negative export demand shock and as a negative domestic supply shock.

Chart 1 does, indeed, pick up a drop in external demand peaking at the turn of 1990 as well as several quarters of negative impact from domestic supply between 1990 and 1994. The sum of the external demand shock and the domestic supply shock provides an upper bound for the impact of Soviet trade.

Another large part of the decomposition comprises domestic financial

Chart 1.

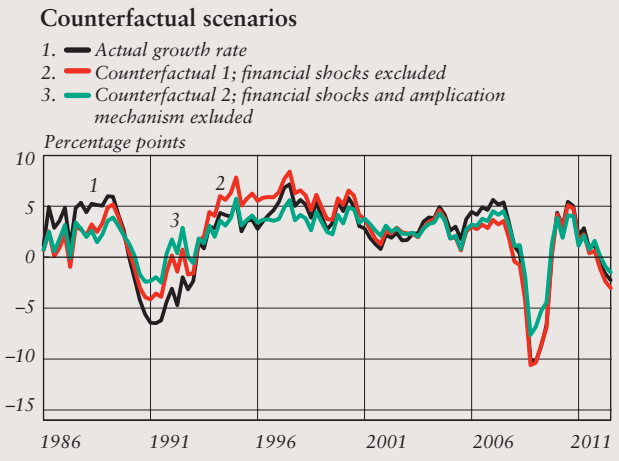


Sources: Gulan – Haavio – Kilponen (2014).

factors. These include both the asset price shock and the loan supply shock. The collapse of the asset price bubble plays an important role between 1990 and 1992. Negative loan supply shocks play a smaller part during the trough, but were dragging down the economy in the recovery phase, around 1994–1995.

The prelude to the crisis was characterized by an overheated economy and high growth rates fuelled by rapid growth in asset prices and strong domestic demand. The decomposition picks up the bubble on the stock and housing markets that followed the financial liberalization of the mid-1980s.[6]

Chart 2.



Source: Gulan – Haavio – Kilponen (2014).

Counterfactuals

To gain further insight into the role of financial factors during the Finnish Great Depression, we analyse to what extent the domestic sector was the actual source of shocks and to what extent it was working as an amplifying mechanism for other shocks. This is done by use of counterfactual scenarios, whereby we first exclude the domestic financial shocks and then also exclude the feedback mechanism from financial variables to the real economy. The results are presented in Chart 2.

If the domestic financial shocks, i.e. the asset price and loan supply shocks, are excluded, the drop in GDP in the trough of the depression is smaller by one third (Counterfactual 1, red line). In 1992 and 1993 the difference is even more striking, and without these shocks the economy would have experienced only a rather mild recession.

In Counterfactual 2 (green line) we additionally exclude the feedback from domestic financial variables to the real economy. The picture changes further still. The recession becomes very moderate between 1992 and 1993. Now the drop in GDP is less than half of what was actually observed in the early 1990s. We interpret this result as strong evidence that financial factors indeed played an important role in deepening the 'Great Depression'. The large role played by domestic financial factors is also clear during the prelude to the crisis, i.e. in the late 1980s. Positive financial shocks add around two percentage points to the GDP

[6] The decomposition might be overemphasizing the role of asset price shocks relative to loan supply shocks in the boom phase, as high asset prices kept collateral values high and, in consequence, held loan losses at bay.

growth rate in 1987 and 1988. Amplification effects make this impact even more pronounced.

It is also worth noting some differences between the Finnish Great Depression and other episodes over the last quarter of a century. During the Great Recession, the financial sector acted mainly as an amplifier of negative shocks (green line). However, the shocks that drove the economy were almost exclusively of foreign origin. Comparison of red and black lines shows that the role of domestic financial shocks was essentially nil.

Finnish Great Depression and Great Recession were different

We conducted an empirical study of the Finnish business cycle, focusing on the Finnish 'Great Depression' and 'Great Recession' episodes. We find a significant feedback from financial variables to the real economy. This feedback is most clear during episodes of boom and bust. However, the role of financial factors is not only about shocks generated within the domestic financial sector; the financial sector also contributes to the business cycle as a transmitter of real economic shocks. Quite typically, the financial sector amplifies the effects of supply, demand and external shocks to the Finnish economy.

The set of factors that led to the Finnish Great Depression were very different from those of the Great Recession in the late 2000s. The former was associated with the bust of asset and lending bubbles followed by a financial and banking crisis together with the collapse of Soviet trade. In consequence, the decline was prolonged and turned into a depression, with a negative GDP growth rate lasting 13 consecutive quarters. The crisis of 2008–2009 was an imported recession originating from global financial markets and a slump in global demand, yet the feedback from the domestic financial sector to the real economy amplified the recession substantially, if to a lesser extent than in the early 1990s.

Keywords: the Finnish 'Great Depression' of the early 1990s, financial crisis, business cycles

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