



DISCUSSION PAPERS

DP/68/2008

The Banking Sector and the Great Depression in Bulgaria, 1924–1938: Interlocking and Financial Sector Profitability

Kiril Danailov Kossev

BULGARIAN
NATIONAL
BANK



DISCUSSION PAPERS

DP/68/2008

BULGARIAN
NATIONAL
BANK

The Banking Sector and the Great Depression in Bulgaria, 1924–1938: Interlocking and Financial Sector Profitability

Kiril Danailov Kossev

September 2008

DISCUSSION PAPERS

Editorial Board:

Chairman: Statty Stattev

Members:

Tsvetan Manchev

Nikolay Nenovsky

Mariella Nenova

Pavlina Anachkova

Secretary: Lyudmila Dimova

© Kiril Danailov Kossev, 2008

© Bulgarian National Bank, series, 2008

ISBN: 978-954-8579-16-2

Printed in BNB Printing Center.

Views expressed in materials are those of the authors and do not necessarily reflect BNB policy.

Elements of the 1999 banknote with a nominal value of 50 leva are used in cover design.

Send your comments and opinions to:

Publications Division

Bulgarian National Bank

1. Alexander Battenberg Square

1000 Sofia, Bulgaria

Tel.: (+359 2) 9145 1351, 9145 1978, 981 1391

Fax: (+359 2) 980 2425

e-mail: Dimova.L@bnbank.org

Website: www.bnb.bg

Contents

Introduction ¹	5
Bulgarian Economic History Literature on the Interwar Period	8
Banking Structure and Finance in the Bulgarian Economy, 1924–1936	11
European Experience during the Depression; Theoretical Model	25
Econometrics and Robustness Checks	30
Conclusion	36
References	38

SUMMARY. The economic narratives of Southeast Europe during the first part of the 20th century are currently being re-written. A story of failed industrialisation and delayed modernisation during the Interwar period has dominated since the pioneering work of Gerschenkron, but not enough aggregate data are available to see this as the only interpretation. In particular, virtually nothing is known about the financial system. This paper has two aims. First, it looks at the banking sector in Bulgaria in the 1924 to 1938 period. We provide new data for the 1920s rise and the 1930s decline of the Bulgarian banking sector and we evaluate its potential contribution to Bulgarian economic growth. In the second part, we discuss different explanations for the widespread collapse of commercial banks after the onset of the Great Depression. Relying on a new data set for over 100 Bulgarian commercial banks, we show that traditional explanations for the collapse of European commercial banks in the 1930s (based on the default of risky loans and falling asset prices due to deflation) need to be complemented by the pernicious effects of widespread insider lending in the Bulgarian case. We conclude that insider lending was the single most important factor behind the demise of the private banking system after the onset of the Depression.

The author is a graduate student in Economic History at Nuffield College, University of Oxford. He holds an MSc in Economic History and a BA in Economics and History from Hertford College, University of Oxford. His research interests are centred on quantitative economic history, international development and international finance. At graduate level, his work is focused on economic growth through history, the industrial development in 20th century Eastern Europe and Interwar (1919-1939) economic crises in the region. In particular - financial institutions, their formation and evolution; cooperation with industry and the resulting interlocked networks - as well as impact on economic development.

Contact details: Kiril Kossev, Nuffield College, Oxford, OX1 1NF, UK; Kiril.kossev@nuffield.oxac.uk

Introduction¹

In a recent paper, Ivanov and Tooze (2007) have pointed out the lack of consistent narratives about the economic development of South-East Europe pre-1945.² While they have put forward this agenda to the attention of economists and economic historians, and have laid some of the groundwork, work on the aggregate is still incomplete. Quantitative analysis of the factors contributing to growth in the regions is yet to come. The stylised facts of stagnating agriculture, failed industrialisation and buoyant, yet inefficient financial sector, have to be placed in appropriate quantitative framework.

The divergent views on the economic development of the Southeast European region range from the overly optimistic paper of Good and Ma (1999), through to the extreme pessimism of Palairet (2001).³ The former view, backed by Maddison in his cross-country GDP estimates, suggests slow convergence of the European periphery to the core. Palairet's work stops in 1914 and presents a bleak picture of stagnation and decline, especially in the predominant agricultural sector. The rather outdated *Bulgarian Economy* by John Lampe and the economic survey of the Balkan countries during the last century by Lampe and Jackson are rather more moderate.⁴

Two modern works by Avramov and Daskalov follow the conclusions of Alexander Gerschenkron about a failed attempt at modernisation and industrialisation during the Interwar period.⁵ Without doubt, the work of Gerschenkron stands out as a pioneering attempt at using aggregate data, yet it is, as Gerschenkron himself suggested, 'unsystematic and of narrow scope'.⁶ Bulgarian scholars writing in the communist period have adhered to a descriptive tradition presenting a steady decline until 1945, which ignores the obvious dynamics of a developing economy. The works of Berov have become classics now.⁷ They are, however, heavily laden with extreme ideological material and provide little in the way of analysis.

¹The author is grateful to Matthias Morys (Economic Department, University of Oxford) for his exceptional support. Martin Ivanov (BAS), Nikolay Nenovsky (BNB), Roumen Avramov (CLS), Avner Ofer, Knick Harley, Jane Humphries and David Chambers (all from the University of Oxford) provided me with invaluable comments. An internship at the Bulgarian National Bank and work with Nikolay Nenovsky and Kalina Dimitrova (BNB) has given me the time and resources to work at the archives for much longer than I could have hoped for otherwise. I am grateful to the Economic and Social Research Council in the UK and the George Webb Medley Fund at the Economics Department of Oxford University for funding my studies and research.

²Ivanov and Tooze (2007)

³Good and Ma (1999), Palairet (2001);

⁴Lampe, (1986), Lampe and Jackson (1988)

⁵Avramov, (2007), Daskalov (2005), Gerschenkron, (1962)

⁶Gerschenkron, 1962; p. 198

⁷Berov, (1989)

Contemporaries of the interwar period, on the other hand, have written numerous and provoking accounts of the country's financial system. Iconic figures like Stoyan Bochev, a long-term banker and influential figure in the economic circles of interwar Bulgaria was a prolific writer. Christoforov – a popular economic scholar, and Tchakalov – director of research at the Bulgarian National Bank, both made valuable contributions.⁸ These, together with an aggregate quantitative analysis can help further our insights into the dynamics of finance in the Interwar Period.

As far as the role of finance and the banking sector in the development of the Bulgarian economy is concerned – there is very little in the way of modern scholarly research. Avramov (2007) has provided some invaluable insights through case studies. The first aim of this paper is to provide an overview of Bulgarian Interwar finance and make suggestions about its possible influences on economic growth. We provide new data for the 1920s rise and the 1930s decline of the Bulgarian banking sector and we evaluate its potential contribution to Bulgarian economic growth. The data is constructed from a previously unused archive of an institution created in 1931, the Bank Board, complementary to the Bulgarian National Bank and the Ministry of Finance, to oversee the commercial banking sector and account for the widespread insolvencies.⁹ This new source is a unique opportunity to gain a fresh glimpse at the workings of the financial system during Interwar Bulgaria. A central problem that emerges from the data is the high levels of insider lending. Our hypothesis is therefore that this factor may explain the widespread bank failures of the 1930s.

Insider lending was by no means unique for Interwar Bulgaria. A great deal of economic literature deals with the positive effects of finance on economic development. Levine (1993) provides an excellent survey of the theoretical underpinnings and the empirical tests that have been conducted. More recently, Trew (2006) has summarised the findings of the literature on the finance-growth nexus. One branch of that literature deals with the suggestion that the structural specifics of national financial system can have profound effects on the development of these nations.¹⁰ In particular – universal banking and relationship banking – have been at the core of a debate regarding the benefits of long-term links between banks and industry.¹¹ Lamoreux (1994) has discussed the practice of insider lending,

⁸Bochev, (1926), Christoforov, (1946); and Tchakalov, (1946)

⁹Bankersky Suvet (translated to Bank Board by League of Nations 1934 publication on Commercial Banks).

¹⁰Cameron, (1967), more recently, Forsyth and Verdier (2003)

¹¹Cameron, (1967), Fohlin, (2007)

associated with universal banking and has concluded positively regarding this phenomenon using 19th century east-coast US banks. More recent analysis of insider lending has moved away from praise to the other extreme. La Porta et al has blamed this practice for the severity of the mid-1990s banking crisis in Mexico.¹² Chapter 4 will discuss the views of the economic literature on the subject. It will also suggest the theoretical underpinnings of the paper suggested by this literature.

This paper argues that persistent credit constraints led to banks-industry interlocking and prevalence of insider loans and these set up a trap for underdeveloped industry during the deflation. Using unique archive material, we are able to test the suggestion that insider lending was one of the main causes for the sweeping bank failures during the depression. The conclusion is that interlocking – presented as a solution to a moral hazard problem – exemplified the negative consequences of underdeveloped financial markets in a time of economic crisis. The power of personal relations is linked to central problems in economics – agency theory and models of principal-agent incentives. Empirical evidence of the impact of such activities can further the finance-growth nexus and help bring these problems to the forefront of policy-making.

The remainder of this paper is organized as follows. In the second section, we will discuss the literature on Bulgarian interwar economic history. Recent research might have improved our knowledge of the real economy, but very little is known about the financial sector. We will fill this gap, partly at least, in the third chapter by providing the reader with new data showing the rise of the Bulgarian banking system in the 1920s and its dramatic decline after the onset of the Great Depression. We then turn to the second aim of this paper, i.e. explaining the dramatic decline of the banking system in the 1930s. In section four, we will set the stage by discussing what we know about bank failures in other European countries in the 1930s. We will also provide some theoretical guidance to the problem of interlocking. The fifth section is the centrepiece of this paper in which we show econometrically that widespread insider lending was the single most important factor behind the demise of the private banking system after the onset of the Depression. The final part concludes.

¹²La Porta et al (2002).

Bulgarian Economic History Literature on the Interwar Period

Ivanov and Tooze (2007) suggest that there are three strands to the debate about East and Southeast European growth experience since the late 19th century. Those who write in the spirit of the late 19th century globalisation, like to see convergence to the European core, albeit in very moderate terms. Revisionists like Michael Palairat, on the contrary, detect divergence, falls in productivity and digression from a market to a subsistence agricultural economy. The reason for such divergent views is the lack of consistent quantitative evidence, which can establish the growth rates of the economy on the aggregate but also the different strands of industry, agriculture and services. Ivanov and Tooze who start off on that path, using data for Bulgaria, have pointed to some important conclusions already, which suggest a middle ground for thinking about the economic development of that country. We have no intention of suggesting a consensus amongst the growth narratives and it is not our aim to present a new take on the data available regarding industrial or agricultural performance either. Rather we aim to persuade in this first section that more work is needed to find a consistent and convincing narrative about economic development and especially accentuate on the lack of work and data on the aggregate for one very important sector – banking and finance.

John Lampe's book on the Bulgarian economy is still the only book-length account in English that attempts to present an aggregate view of the 20th century development of that country.¹³ Thus it is necessarily the benchmark against, which all other analyses are presented. Partially using data from the earlier work by Bairoch, it provides a sterling case for the optimistic view of convergence.¹⁴ Including the years of the two world wars, Lampe's figure of 2.7 per cent growth, nearly double the European average of 1.7 per cent.¹⁵ Thus the optimistic case has been more or less influenced by the stylised fact of economic catch-up on part of the less developed periphery suggested by neo-classical growth theory. Good and Ma (1999) have framed their quantitative analysis in such lines. They conclude that the potential growth, consistent with catch-up on the developed core was only achieved in the late 19th century up until 1914. During the Interwar period and subsequent communist regime there was very little economic advancement. They,

¹³Lampe, (1986)

¹⁴Bairoch, (1976), pp.273–340

¹⁵Lampe, (1986) p.14

therefore present a middle ground amongst growth historians of the Balkan region.

Ivanov and Tooze have re-estimated the national income of Bulgaria for 1892 and 1911, whilst adding new data points 1899, 1905 and 1921. The difficulties of gathering new data has meant that they can not present an unbroken sequence of figures, but from the estimates they provide, a number of conclusions can be drawn. Prior to 1914 no significant progress was achieved, yet they claim that the Interwar period was notable for the changes that took place within the agrarian sector in the economy - like switching to production of industrial crops. Still figures for industrial share of output were around 15per cent, which is little changed from earlier parts of the 20th century. The literature on Bulgaria presents a predominantly agricultural economy, where the share of the agrarian sector amounted to 70 per cent-80per cent throughout the late 19th and early 20th centuries. This evidence seems to confirm Palairet's phrase - evolution without development.

The latter has provided a rather bleak picture of the Balkan economies pre-1914.¹⁶ His arguments suggest that the break with the Ottoman Empire resulted in restricted domestic markets, redistribution of land into small landholding and gradual retreat from the market and a return to subsistence farming on the part of the peasant populations. This resulted in the divergence from the European core rather than growth in development.

Bulgarian historians have taken a similar stance. Two recent works by Daskalov and Avramov have largely agreed with the pessimistic narrative.¹⁷ They very much agree to a story presented by Gerschenkron in 1950s-amounting to failed modernisation and industrialisation. Daskalov claims that the only sectors outside agriculture, which exhibited some growth, were the state protected industries - mining, metal works, electricity production, chemical products, etc. Figures he borrows from contemporary writers show fourfold increase in the number of enterprises, which received state support, and around threefold increase in the number of workers employed there between the years of 1909-1939.¹⁸ He gives us a feel for the stagnation in other sectors by putting forward a number of examples to act as case studies. Avramov (2007) uses a similar approach to present not dissimilar results.

The work of Ivanov and Tooze has boosted the case of the pessimists. Given the painstaking efforts to gather data for the period pre-1924 and match that across other available estimates, it seems that the case of

¹⁶Palairet, (2001)

¹⁷Avramov (2007), Daskalov (2005)

¹⁸Daskalov, (2003) p. 323

divergence, suggested by Palairer, is more believable than the overly optimistic picture, painted by Lampe and Lampe & Jackson. Further inconsistency is the evolution of the agrarian sector between the world wars. Ivanov and Tooze's data suggests a move towards industrial crops, decline in grain production and shifting the balance of exports to tobacco.¹⁹ Lampe's figures, taken from the Statistical Yearbook of Bulgaria, suggest growth in grain and tobacco production, but a decline in industrial crops.²⁰ A conclusion that follows is that agriculture did not stay stagnant – there were clear efforts to overcome the world-wide decline in the prices of primary products and the increasing trade isolation, faced by the agricultural producers in the periphery during and after the Depression.

If aggregate data about the real economy is sparse and difficult to put together, then data on the financial sector is even more so. All of Lampe, Avramov and Daskalov talk about expansion in the banking sector during the 1920s and then a severe contraction during the 1930s. The second part of the Interwar period was also allegedly characterised by an increased role of state capital, a centralisation of private bank capital into fewer, but larger institutions and a near complete flight of foreign capitals from the country. This very much represented a return to the pre-1919 state of the economy, as Avramov (2007) has suggested. Lampe has provided some data on loan value of banks during the 1920s to illustrate the much-increased share of private commercial banks. He suggests a near doubling in the value of loans given out by private commercial institutions from 1911 to 1928.²¹ Avramov has used case studies to illustrate the dynamics of the microcosm of the financial world. His conclusions of the overbearing role of the state and foreign capital in the Bulgarian financial system and the chronic shortage of capital will form the starting premise of the next chapter. He has also provided some very good examples of insider lending with fatal consequences for the banks.²² We very much agree with his conclusion of widespread practice of insider lending, which rotted the banking system from inside – we provide quantitative evidence on the aggregate for this and a formal test in chapter 6. We also feel there is a need for a narrative on the aggregate level, about the experience of the banking sector. The following section takes steps towards that aim.

¹⁹Ivanov and Tooze, p. 25

²⁰Lampe (1986), p. 85, Lampe suggests largest growth in vegetable output between 1931–1935, by around 29 per cent. For the same period yield per hectare in industrial crop fell by 29 per cent, but due to increased land in cultivation, actual output per capital increased by 12 per cent. Grain output per capital increased by 9 per cent, but yield/h went up by some 14 per cent.

²¹Ibid., p. 67

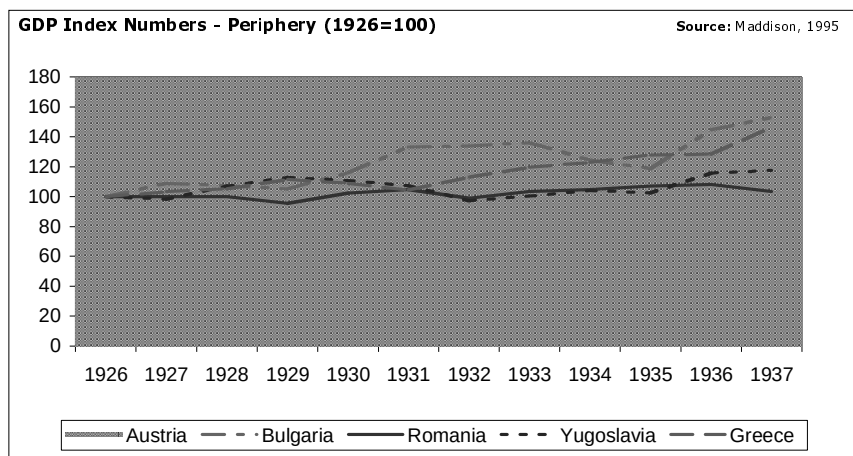
²²Avramov, (2007), vol. 2, pp. 405–455

Banking Structure and Finance in the Bulgarian Economy, 1924–1936

Given the uncertainties in quantitative terms about the economic experience of the Southeast European region and Bulgaria in particular during the Interwar Period – the majority of scholars have followed the general trend of explaining the 1920s as years of dynamic growth, which descended into slowdown and a lengthy depression. The 1930s were then the time of slow recovery, but also increasing international isolation.²³

Fall in prices of primary products undermined significant parts of the peripheral countries' income. As export income dried up, reparation and foreign debt payments became extremely difficult. By 1931 countries like Poland, Romania, Yugoslavia and Bulgaria were in an untenable indebtedness.²⁴ Policies used to alleviate the crisis involved rigorous exchange controls and increased state intervention into the industrial and financial sector. These had significant deflationary effects on enterprises and a knock on effect on the financial and credit facilities. Figure 1, below, shows the movement of GDP for a selection of Balkan countries and Austria, as a central European benchmark. Figure 2 shows the movements of Bulgarian NI throughout the interwar period.

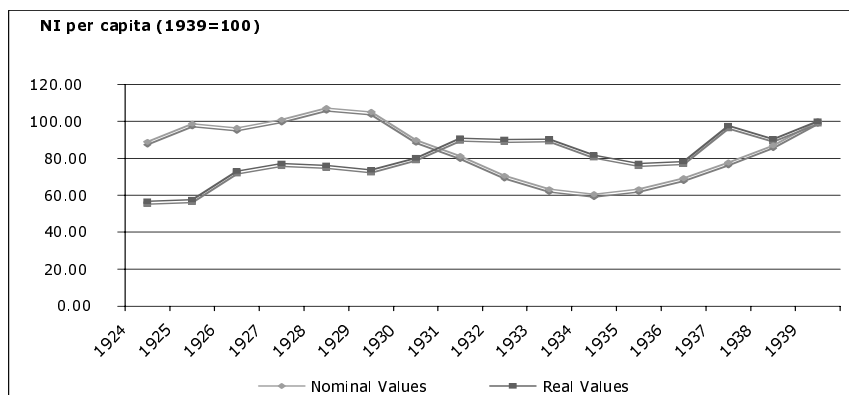
Figure 1



²³Lampe, (1986); p. 78

²⁴Feinstein, Temin, and Toniolo, in Feinstein, C. (ed.), (1995), p. 35

Figure 2



For the majority of the countries in South-East Europe the Depression meant a long and difficult period of economic stagnation, which lasted until the end of World War II. Figure 1 suggests that exceptions were Greece and Bulgaria. Given the acute awareness of contemporaries of the economic depression the figures presented above are puzzling. An interpretation regarding Bulgaria, involve the invigorating injection of foreign capital through two major loans – the Refugee Settlement Loan in 1926 and the Stabilisation Loan of 1928.²⁵ There is a danger of overstatement, as experience from the developing countries tends to show that such loans are usually recycled through the state bureaucracies and hardly ever reach the credit system or the industrial base of the country in question.²⁶ More work is needed to disentangle the picture resented to us by GDP estimates. The nominal values of figure 2 are more representative of the depression period – as the real values, corrected for inflation, necessarily present the deflation years 1929–1933 as a period of stability.

Figure 3 presents a price index of Bulgaria that we have constructed using similar data to Lampe and Jackson, with 1927 as a base year. There, the sharp fall during the turn of the decade is evident. Figure 4 presents a breakdown of the price fall into the prices of manufactured and agricultural goods.

²⁵Pasvolsky, (1930), pp. 109–10

²⁶Dadush and Nielson, (2007), for a most recent view on the inefficiency of international loans and aid, see Easterling, *The White Man's Burden* (2007)

Figure 3

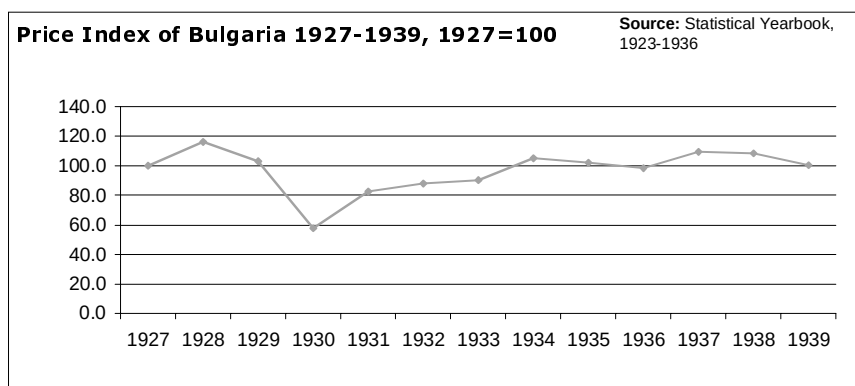
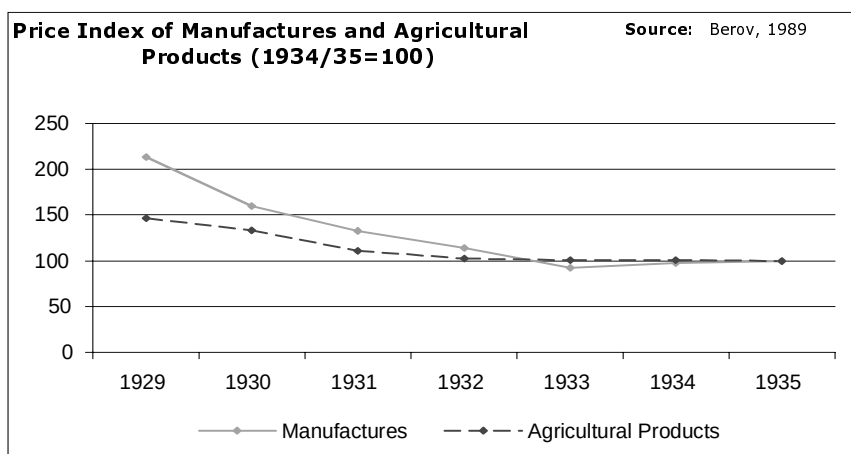


Figure 4



Unambiguous and sharp fall in prices began in the late 1920s. Somewhat surprisingly our index shows a steady recovery from 1933 onwards, while Berov's data reaches a bottom around the same time and remains there.

Agricultural production, in terms of total crops output, shrunk by 18 per cent.²⁷ The industrial sector shrank by about 34 per cent, but its recovery was

²⁷Pasvolski, p. 438

much more rapid in comparison to the agricultural sector.²⁸ Overall the Bulgarian economy seems to have reached a nadir in terms of output around 1934. The data presented above, however, fully reflects the controversies of the scholarly literature. It opens more questions than the answers it can provide.

* * *

Most of our original data comes from previously unused archive materials, to be found in the Central Archive in Bulgaria. Very useful additions were publications by contemporaries as well as League of Nations reports on the commercial banking systems.²⁹ The latter provide a useful crosscheck since the financial data is presented in the format of an orderly balance sheet.

The database used in the quantitative analysis of this paper has been collected from the archive of an institution called *Bankerski Suvet* (Banking Committee, BC thereafter), created within the Ministry of Finance, now preserved within the Central State Archive of Bulgaria, in Sofia.³⁰ This institution was set up on 4th January 1931, with the Act for the Protection of Private Deposits.³¹ Its functions were to act as a regulator to the banking sector, demand standardized balance sheets and reports from each bank and review any misconduct of banking institutions. Its members were central bankers from the Bulgarian National Bank (BNB) and experienced auditors working for the BNB as well as the Ministry of Finance, in addition to representatives from commercial banks.

Picture 1

A SAMPLE OF BNB AUDITOR REPORT

- 47 -

	Спестовни влогове	Търговски влогове	Други кредитори
Към:			
30. 9. 1931 г.	1. 279	1. 304	654
30. 9. 1932 г.	1. 281	1. 304	654
30. 9. 1933 г.	1. 281	1. 304	654
30. 9. 1934 г.	1. 281	1. 304	654
30. 9. 1935 г.	1. 281	1. 304	654
30. 9. 1936 г.	1. 281	1. 304	654
30. 9. 1937 г.	1. 281	1. 304	654
30. 9. 1938 г.	1. 281	1. 304	654
30. 9. 1939 г.	1. 281	1. 304	654
30. 9. 1940 г.	1. 281	1. 304	654
30. 9. 1941 г.	1. 281	1. 304	654
30. 9. 1942 г.	1. 281	1. 304	654
30. 9. 1943 г.	1. 281	1. 304	654
30. 9. 1944 г.	1. 281	1. 304	654
30. 9. 1945 г.	1. 281	1. 304	654
30. 9. 1946 г.	1. 281	1. 304	654
30. 9. 1947 г.	1. 281	1. 304	654
30. 9. 1948 г.	1. 281	1. 304	654
30. 9. 1949 г.	1. 281	1. 304	654
30. 9. 1950 г.	1. 281	1. 304	654
30. 9. 1951 г.	1. 281	1. 304	654
30. 9. 1952 г.	1. 281	1. 304	654
30. 9. 1953 г.	1. 281	1. 304	654
30. 9. 1954 г.	1. 281	1. 304	654
30. 9. 1955 г.	1. 281	1. 304	654
30. 9. 1956 г.	1. 281	1. 304	654
30. 9. 1957 г.	1. 281	1. 304	654
30. 9. 1958 г.	1. 281	1. 304	654
30. 9. 1959 г.	1. 281	1. 304	654
30. 9. 1960 г.	1. 281	1. 304	654
30. 9. 1961 г.	1. 281	1. 304	654
30. 9. 1962 г.	1. 281	1. 304	654
30. 9. 1963 г.	1. 281	1. 304	654
30. 9. 1964 г.	1. 281	1. 304	654
30. 9. 1965 г.	1. 281	1. 304	654
30. 9. 1966 г.	1. 281	1. 304	654
30. 9. 1967 г.	1. 281	1. 304	654
30. 9. 1968 г.	1. 281	1. 304	654
30. 9. 1969 г.	1. 281	1. 304	654
30. 9. 1970 г.	1. 281	1. 304	654
30. 9. 1971 г.	1. 281	1. 304	654
30. 9. 1972 г.	1. 281	1. 304	654
30. 9. 1973 г.	1. 281	1. 304	654
30. 9. 1974 г.	1. 281	1. 304	654
30. 9. 1975 г.	1. 281	1. 304	654
30. 9. 1976 г.	1. 281	1. 304	654
30. 9. 1977 г.	1. 281	1. 304	654
30. 9. 1978 г.	1. 281	1. 304	654
30. 9. 1979 г.	1. 281	1. 304	654
30. 9. 1980 г.	1. 281	1. 304	654
30. 9. 1981 г.	1. 281	1. 304	654
30. 9. 1982 г.	1. 281	1. 304	654
30. 9. 1983 г.	1. 281	1. 304	654
30. 9. 1984 г.	1. 281	1. 304	654
30. 9. 1985 г.	1. 281	1. 304	654
30. 9. 1986 г.	1. 281	1. 304	654
30. 9. 1987 г.	1. 281	1. 304	654
30. 9. 1988 г.	1. 281	1. 304	654
30. 9. 1989 г.	1. 281	1. 304	654
30. 9. 1990 г.	1. 281	1. 304	654
30. 9. 1991 г.	1. 281	1. 304	654
30. 9. 1992 г.	1. 281	1. 304	654

Както спестовните така и търговските влогове показват постоянно намаляване съ-
слабо и несигурно задържане през 1935 г.
От горните спестовни влогове съ срокът на-
3 месеца към 30.9.1931 г. съ лв. 263 милиона,
а към 30.9.1935 г. 104 милиона.

Само чуждите банки показват креди-
тори:

	Спестовни влогове	Търговски влогове	Други кредитори
Към:			
30. 9. 1931 г.	809	1. 107	464
30. 9. 1932 г.	634	1. 085	160
30. 9. 1933 г.	556	1. 038	30
30. 9. 1934 г.	489	831	318
30. 9. 1935 г.	474	747	283

Кредиторите въ чужда валута спадатъ

²⁸Tchakalov, (1946), p. 114; see also Avramov, (2007), p.64

²⁹League of Nations Memorandum on Commercial Banks, Geneva, (1934)

³⁰Central State Archive, file 602k, 1

³¹Durjaven Vestnik [State Newspaper], v. 227 from 12/1/1931

The early 1930s saw a series of legislative acts, caused by the anxiety of consecutive bank failures and serious increase in the indebtedness of the population. By 1932, three laws were passed to protect banks having problems of liquidity, debtors as well as debtors involved in small-scale agriculture.³² These pieces of legislation were instrumental in establishing set rules for financial accountability.

Importantly, once a bank was in difficulties with the payment of its reserve deposit with the BNB or following complaints by customers for delayed payment of their deposits, the BC was obliged to send an external auditor whose job was to examine thoroughly the accounts and report on the bank situation. It is these reports that turned out to be most useful for the current research, because they contain end-of-year balance sheets and, more often than not, a list of main debtors as well as main depositors, list of the members of the governing council of each bank, and analysis of the external auditor as to the nature of the bank difficulties and the possible reasons. Within the archived documents of the BC there were 101 folders for each bank registered with the BC and allowed legally to practice banking. These contained reasonably detailed quantitative information, as well as qualitative reports and opinions by the external auditor.³³

Most of the quantitative data was extracted from the balance sheets of banks, but gathering the data on interlocking presented some problems of methodological nature. I have followed standard legal practice, outlined in La Porta et al, and have defined related debtors as those who are: (1) shareholder, director or officers of the banks; (2) family members of shareholders, directors or officers of the bank; (3) firms where the previous two categories of individuals are officers or directors; or (4) firms where the bank itself owns shares.³⁴ This information was extracted from the auditors control report, where the auditors themselves have on a number of occasions branded debtors as insiders. This procedure is imperfect and it is possible that a certain volume of insider loans were not recorded. The bias however is more likely to act in support of our conclusions, because it likely that, if anything, we have underestimated the total volume of insider loans.

* * *

What follows is a schematic outline of the findings in aggregate terms of the structure of the banking sector in interwar Bulgaria as well as its experience during the Great Depression.

³²ibid., pp.216–217; the laws are *Zakon za Predpaznia Konkordat*, *Zakon za Oblekhenie na Dlujnicite* and *Zakon za Zakrila na Zemedeleca Stopanin*

³³ for a list of all archival folders, see section on primary sources in the Bibliography.

³⁴La Porta et al, (2002), p. 8

The financial system of Bulgaria began its development immediately after the country gained independence - in 1880 the lev was adopted as a national currency, while the pillar of the banking system, the Bulgarian National Bank, was set up in 1879. By 1885 the BNB had full issuing rights and was involved in the provision of credit to customers. BNB's role of a creditor should have legally ended in 1928, but it retained a sizeable 10 per cent of the direct credit for some time after that.³⁵ The state gave the initial impetus of the credit sector - within a period of 30 years, 1879-1910, the BNB, the *Bulgarska Zemedelska Banka* (BZB) and *Bulgarska Centralna Kooperativna Banka* (BCKB) were created.³⁶

A complex substructure formed below these large institutions - agricultural credit cooperatives operated in the countryside, being fed on the funds of the BZB, and a town and city equivalent, called popular banks, formed to provide loans to crafts and industrial cooperatives. The relationship was not entirely unidirectional - sometimes the BZB and BCKB sidestepped the smaller intermediaries and lent directly to the final consumer.

The private banking sector presents a simpler picture. Private finance was organized around the representatives of a few foreign banks, which entered the credit market in Bulgaria in the 1900s.³⁷ In 1903 there was a reform in the commercial legislation, which allowed foreign residents to sit in the controlling committees of joint stock companies.³⁸ This significantly boosted the chances of foreign presence and there was real influx of foreign banks and capital after 1919. A total of 13 large foreign banks accounted for some 40 per cent of the private bank capital of Bulgaria by 1929.³⁹

A number of large independent financial institutions was formed, mainly in the capital city of Sofia, however after 1919, the difference between these and the foreign banks became very slight - foreign capital leaked through to the significant banks based in Sofia. At the bottom, in terms of size according to assets and credits were the small shareholding banks, which operated mainly outside Sofia. These were the institutions, which had to break through the credit constraints faced by industrialists, agricultural workers and craftsmen, who were not large or well-organized enough to obtain access to the big foreign banks. These were also the institutions hit worst by the deflation and the prolonged depression - so many of them collapsed that by

³⁵ Annual Reports of the BNB, 1880-1929

³⁶ Avramov, (2007), vol. 2, p. 72

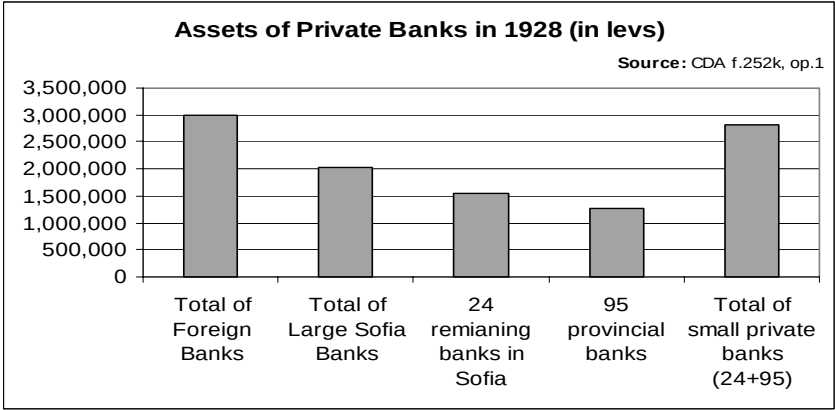
³⁷ the first foreign bank to enter the Bulgarian credit market was Deutschebank, through the establishment of Credit Bank in 1906 in Sofia.

³⁸ Crampton, (2007), p. 304

³⁹ Lampe, (1986), p. 66

1935, a *Banka Bulgarski Kredit* (BBC) was formed to gather the remnants into one large institution. Although legally private, it was de facto controlled by the state and its capital was mainly supplied by funds from the BNB reserves. Figure 5, below, shows the assets of private banks in leva, classified according to the above discussion, in 1928, just before the onset of the depression.

Figure 5



Private banks, located in Sofia, were by far the largest in terms of asset volume. Banks with foreign capital were larger as a group than the total of all small private banks in Bulgaria.⁴⁰ It is important to point out that although the figure above suggests provincial private banks possessed smallest volume of assets, they were very important for local agricultural producers, merchants and craftsmen.

Figure 6 compares the asset shares of the three state owned banks versus the private banks (the latter include all private institutions - from large foreign banks to small provincial banks). It is evident that state capital was a pillar in the financial system. BZB, the Agricultural Bank, in particular, possessed as much as half of the assets of all private banks in total.

⁴⁰'Small' is classified as a bank with less than 30,000 leva as total assets.

Figure 6

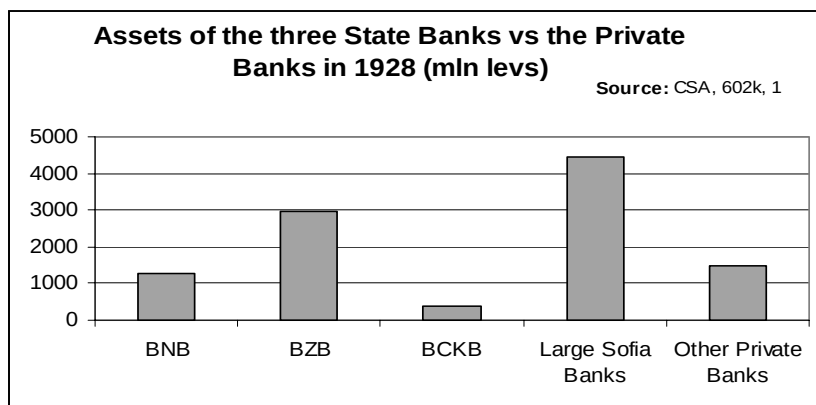


Figure 7

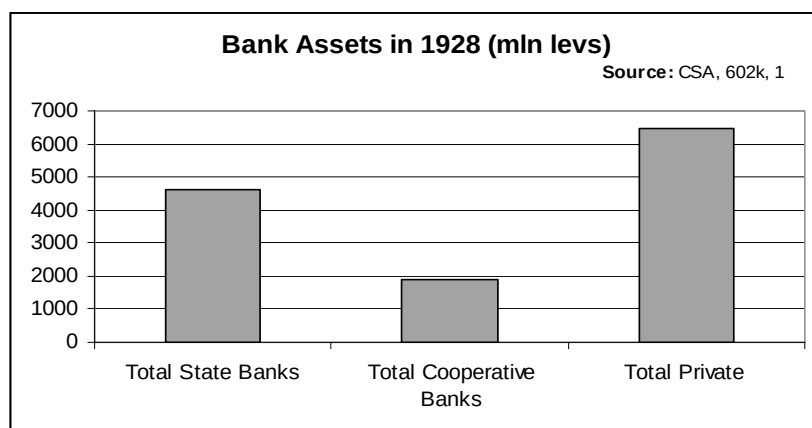


Figure 7 provides further evidence for the structure of the banking sector in the 1920s. It presents the aggregate assets shares of state banks, cooperative banks (intermediaries between the BCKB and BZB and the final consumer), and private banks. The total share of assets of the private banks is larger than each of the shares of state or cooperative banks and just over half of the total assets. Given the small number of state institutions – three – each of them is more significant than any of the private banks on its own. More data, providing a further breakdown of the banking sector in 1928 and 1932, is shown in the appendix, at the end of the paper.

Figure 8

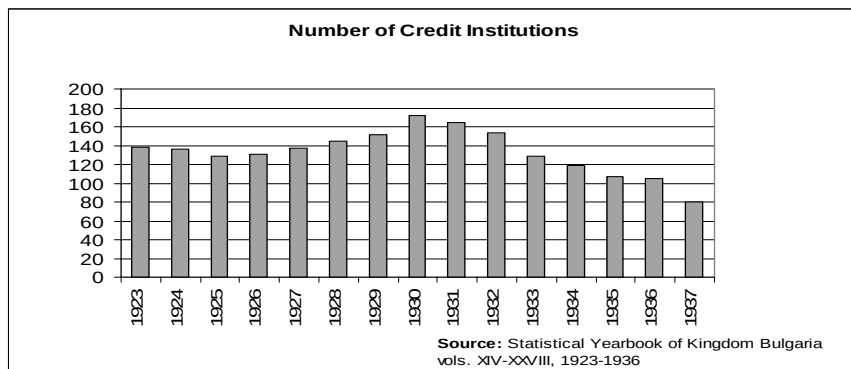
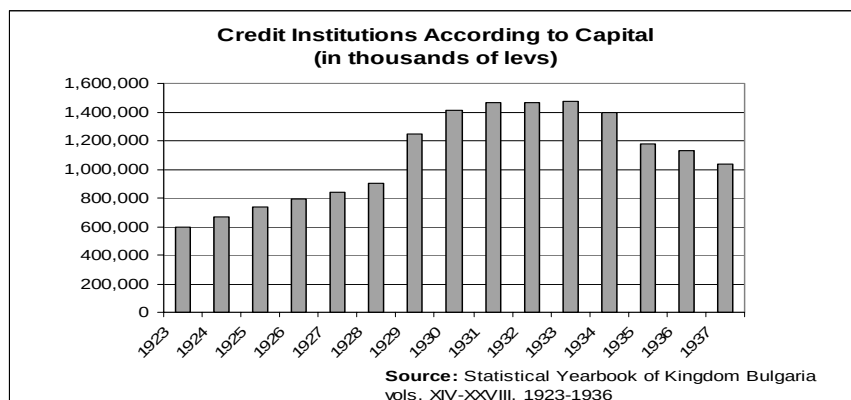


Figure 9



Figures 8 and 9 show an overall picture of the credit system in Interwar Bulgaria. The early 1920s, years of hyperinflation and currency instability brought very slow development. Sharp increase in the number of institutions and amount of credit can be seen in 1928-1929 and then a steady contraction throughout the 1930s. The private commercial banks saw the most dramatic changes in their portfolios. During the second half of the 1920s deposits held in them increased by about 100 per cent, while only for the period 1929-1932 they declined by about 50 per cent.⁴¹ In this respect, the Bulgaria banking sector did not have a unique experience – the irrational exuberance of the 1920s was severely checked by the depression period.

⁴¹ Author's own data. See table 2,3 and 4 in the Appendix

Figure 10

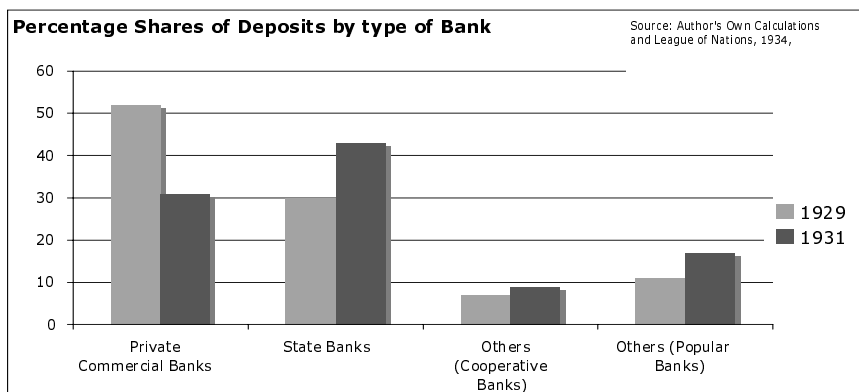
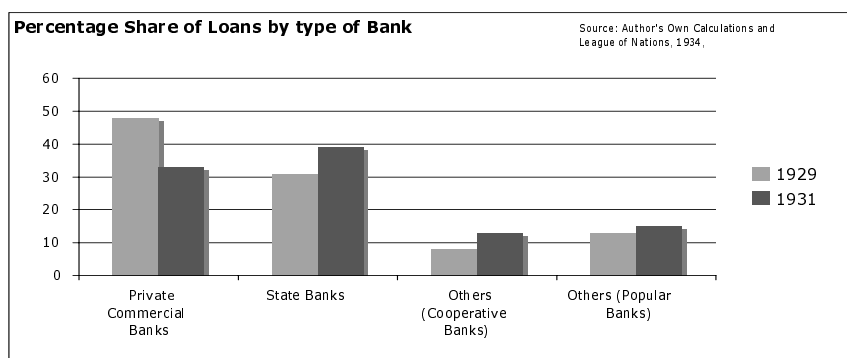


Figure 11



During the Depression years, significantly, the role of foreign capital diminished radically – from 20 per cent of total active capital in 1931, to below 7 per cent in 1934. In absolute terms the short-term foreign credits fell from 2,500 mln. *levs* in 1929 to 812 mln. in 1931 and 210 mln. in 1934.⁴² This had a severe deflationary effect and led to a radical restructuring of the banking system. The private sector was supposed to fill the gap, and indeed, by 1936 the two largest private institutions had more deposits than the four foreign banks still present in the Bulgarian credit market after the depression, but also twice as much as all the small private banks together.⁴³ This suggests

⁴²Christoforov, (1946), p. 179

⁴³Avramov, (2007), vol. 2, p. 411

an interesting dynamic – expectedly, the largest institutions were best placed to survive the depression and retained their assets and increased their market share, in light of the distress of small private institutions of local importance. So many of the latter experiences severe difficulties of liquidity, that by 1934, a state intervention was necessary to restructure the feeble private sector. The choice of banks facing ruin was either to merge into the de facto state bank BBC or to be liquidating, if they had lost more than 50 per cent of their operational capital. Figures 8 and 9 illustrate the results of the liquidity shock that the depression caused. The former presents the rise in the number of credit institutions during the euphoria of the late 1920s, after the Stabilization and Refugee loans injected liquidity into the credit system, but also the subsequent fall, caused by bankruptcy and merger, in the early 1930s. The latter graph illustrates the same situation, but in terms of capital. There, the drop seems less significant, but has to be kept in mind, that bank liquidation was a very slow process, sometimes taking the whole of the 1930s decade, due to prolonged law suits to recover bad loans. Furthermore, many of the banks, which merged into BBC still counted a substantial part of their capital as recoverable, while in fact it was either acutely diminished or totally lost, due to the deflation and bankruptcy of their debtors. Figures 10 and 11 illustrate a further interesting dynamic, where the state sector took over a large part of the decline of the private sector. This is illustrated in terms of share of deposits and share of loans respectively.

Tables 1 and 2 below, present the changes in commercial bank deposits just before and during the depression in an international context. We can see that Bulgaria experiences a healthy increase in deposits of commercial banks during the 1920s, but by 1932 a sharp decline can be detected – Bulgaria was amongst the countries, the banking sectors of which suffered most heavily.

Table 1

MOVEMENTS OF COMMERCIAL BANK DEPOSITS, 1925–1929

Source: League of Nations, Geneva 1934

Increase of 100 per cent or more	Increase 50–100 per cent	Increase 25–50 per cent	Increase 25–1 per cent	No increase or Decline
Poland	Germany	Mexico	Yugoslavia	Sweden
Hungary	Belgium	Switzerland	Czechoslovakia	India
Latvia	Romania	Venezuela	Canada	Denmark
Estonia	Lithuania	Finland	Argentine	Bolivia
Colombia	Bulgaria	Austria	USA	Norway
	France		Japan	
	Brazil		Italy	
	Urguay		England and Wales	
	Spain		Netherlands	

Table 2

PERCENTAGE DECLINE IN TOTAL COMMERCIAL BANK DEPOSITS IN VARIOUS COUNTRIES, 1929-1932

Source: League of Nations, Geneva 1934

Decline of 60-40 per cent 30-20 per cent 20-10 per cent 10-0 per cent Increase

Latvia	Venezuela	Estonia	Argentina	Lithuania
Poland	SA	Netherlands	Italy	Sweden
Austria	Mexico	Chile	Czechoslovakia	Switzerland
Bulgaria	Colombia	Canada	Australia	UK
Germany	Portugal	Norway	Hungary	Brazil
Romania	Belgium	Ecuador	Denmark	Bolivia
		Yugoslavia	France	Peru

The experience of the banking sector is consistent with the leak performance of the overall economy during the Interwar period. In fact the state of the banking sector and the serious inefficiencies in capital allocation that we point out resulted from insider lending may have had a further negative effect on growth.

Figure 12

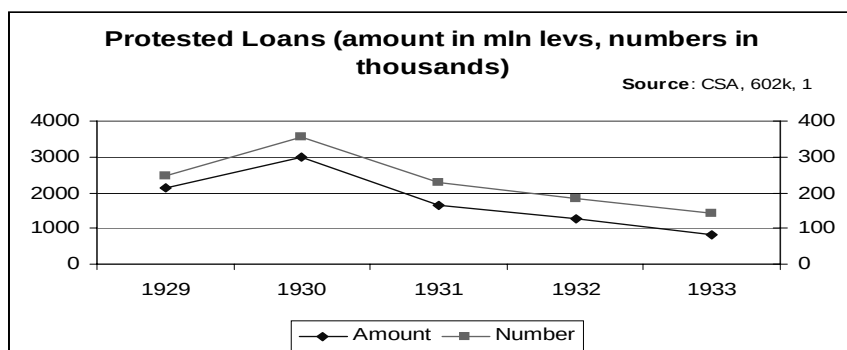


Figure 13

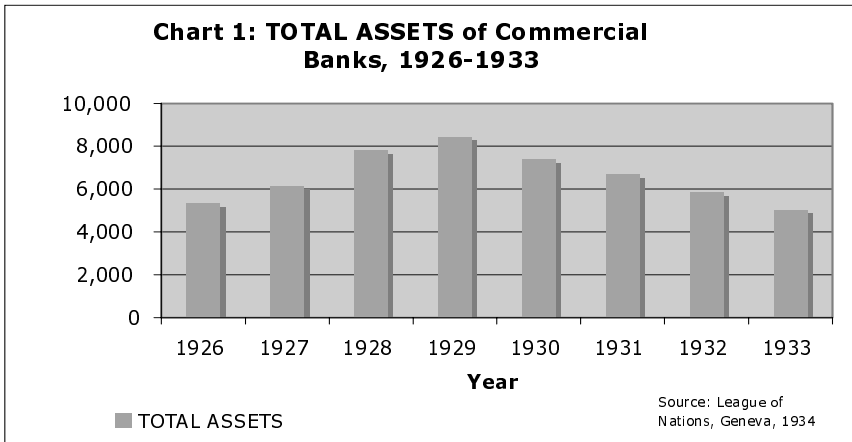


Figure 14

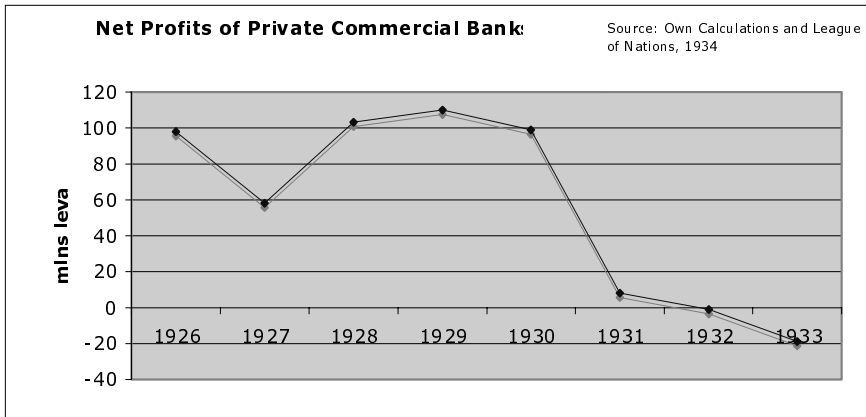


Table 3

SUMMARY POSITION AT THE END OF THE FOLLOWING YEARS

(IN LEVA 000,000)

Summary Accounts for Commercial Banks	1926	1927	1928	1929	1930	1931	1932	1933
Number of Banks (branches and sub-branches)	110	116	128	135	138	131	129	118
ASSETS								
cash	597	602	782	714	870	968	884	662
bills+investments and securities+participations	1 514	2 110	2 965	3 056	2 293	1 865	1 575	1 262
loans and dues	2 793	2 880	3 483	3 938	3 489	2 621	2 101	1 992
sundry assets	287	382	405	511	545	1 133	1 173	1 029
TOTAL ASSETS	5 349	6 154	7 838	8 442	7 412	6 684	5 861	5 046
LIABILITIES								
Net Profit	99	87	105	118	114	62	30	16
Deposits due to banks other borrowings	4 198	4 983	6 563	6 959	5 887	4 545	3 996	3 347
TOTAL LIABILITIES	5 349	6 154	7 838	8 442	7 412	6 684	5 861	5 064

Source: League of Nations, Geneva 1934

Figures 12, 13, 14, and Table 3 summarise the experience of Depression. The year 1930 was the turning point for the banking system. It marks that peak in protested, irrecoverable, loans. It was also the beginning of the gradual erosion of bank assets, which by 1933 had dropped to the pre currency stabilisation year of 1926. In 1930 began the sharp downward slide of bank profits and rise of net losses. By 1932 net losses had outstripped profits in the commercial banks balance sheets. The rest of the paper explains this drop in profitability and the increase in protested loans and eventual losses.

European Experience during the Depression; Theoretical Model

Economic theory suggests that a sophisticated and efficient financial system is highly beneficial to the rest of the economy. A basic function of finance is to mobilise aggregate savings and channel them towards investment in productive enterprise.⁴⁴ Schumpeter's seminal work (1939) has identified the role of financial institution in seeking out profitable investment and thus acting as an essential agent in the process of creative destruction, which drives economic development in a capitalist economy. Asymmetric information problems may arise because investors and entrepreneurs have different information about a project. Entrepreneurs have inside information and can estimate the worthiness of a project much better than outside investors, who will find it costly to acquire information about the profitability of a project. More recent literature has put forward the function of financial institutions in monitoring firms, in terms of their efficient use of the funds provided.⁴⁵ In this case moral hazard may arise as a post-contractual information problem, where entrepreneurs have lower incentive of pursuing their project to a profitable end, once they have secured funds for their expenses and salaries. Essentially – financial intermediaries are there to solve information problems in imperfect investment markets.

A second set of theoretical problems is centred on the idea that well-developed and open financial markets spread opportunity to a wide section of economic agents, while underdeveloped credit markets under strong government influence, are prone to restrict access and benefit a select

⁴⁴Levine (1997), p.691

⁴⁵Paulet (1999), p.3, Levine (1993) provides an excellent survey of the theoretical underpinnings and the empirical tests that have been conducted on the effects of finance on economic development. More recently, Trew (2006) has summarised the findings of the literature on the finance-growth nexus.

group.⁴⁶ Firstly, this is detrimental to economic growth, as it means that the function of seeking out potentially profitable, but possibly risky, projects is severely constrained, and secondly, it is socially harmful as it deepens inequality. This literature provides theoretical underpinning of our argument that insider lending undermines economic efficiency.

Insider lending can thus be damaging to the financial system, as it prevents prudent regulations of lending to take place – like research of the prospective debtor, their financial prospects or real asset ownership, which can compensate the bank in case of the latter's bankruptcy.⁴⁷ It has been argued that motivation for interlocking exists to increase the potential to facilitate relationships between corporations and their directors, and has been interpreted in terms of either organizational or class dynamics.⁴⁸ In this paper, it is the inter-organizational perspective that is of interest – where corporations create interlocks in response to their needs for resources controlled by other organizations in their environment. Particularly attractive partners for interlocks are banks, because they control one of the most essential of resources – credit.

Avramov (2007) argued that insider lending due to constrained credit was widespread in the Interwar Bulgarian banking sector.⁴⁹ Following in his steps and those of La Porta et al. this paper's second aim is one of testing a hypothesis that the practice of insider lending prevented the financial system of playing an active role in the process of economic development and proved its demise during the experience of the Great Depression.

Specific models have been developed to estimate banking efficiency/profitability and their responses to crises and the Great Depression in particular. Calomiris (1993) reports on the changing perceptions of credit allocation under asymmetric information in recent times.⁵⁰ Information costs means that 'insiders' – firm managers and financial intermediaries with a long-term relationship with the bank/firm – can supply funds at a lower cost than 'outsiders' – relatively uninformed stockholders and bondholders.⁵¹ Thus changes in the wealth distribution between insiders and outsiders can alter the performance of banks. Mishkin (1976) followed up by Bernarke (1983)

⁴⁶Rajan, R., Zingales, L., (1998), and (2003)

⁴⁷Soref and Zeitlin, (1987), p. 60.

⁴⁸Palmer, D., Friedland, R., Singh, J., (1986), p. 783

⁴⁹Avramov, (2007), pp. 454–464

⁵⁰Calomiris, (1993)

⁵¹Akerloff's 1970 seminal work began research in this area. Followers were Stiglitz and Weiss (1981) and Myers and Majluf (1984)

have looked deeper into the problem of debt deflation, excessive leverage and allocative consequences of wealth redistribution in the presence of capital market imperfections. They have applied this approach to analyse the role of financial factors in the story of the Great Depression in the US.

In European perspective, Jonker and Van Zanden (1995) have found the common explanation of bank failure during the Depression to be falling asset prices and default of risky loans.⁵² Their model is centred on the pattern of deflation to try and bring currencies back on par with the levels of 1914. This eroded the incomes of banks by squeezing debtors and reducing asset prices. The argument runs as follows – effectively, the changes that took part in the banking practice during the high inflations in the post-1919 world exposed banks to the latter deflations.

Inflation had positive effects on exporting industries and industries where assets increase in value. The banking sector, however, where most assets were nominal, experienced adverse effects. Banks had to increase their real activities to keep up with the rising prices – as their loans to industry decreased in value. Two strategies emerged to cope with the inflation periods – to convert nominal assets into real ones, in other words the rise in investment banking and the purchase of physical assets, or to expand lending rapidly, certainly faster than inflation. Both strategies resulted in exposure to the deflation during the Depression years.

The first strategy directly affected banks liquidity position and the value of their balance sheet, once prices of real assets started falling after 1929. Expanding lending rapidly meant increased competition between banks for profitable loans and as a result the quality of debtors decreased. In this case the exposure to the deflation was indirect, but just as harmful, since bankrupt debtor meant a loss to the bank. Thus a rational response to the inflations in the beginning of the 1920s resulted in bank vulnerability by the end of the same decade when deflation kicked in.

Jonker and Van Zanden's explanation is an appealing one, and it is also backed up by compelling empirical evidence. It is aimed at the core of industrialised European countries and although putting the blame on ill-conceived loans made during an inflationary period, it does not do enough to explain the origins of these loans. Particularly for countries where the credit institutions were closely linked to industry, it is essential to probe deeper into the origins of these ties and the likelihood of them being reasons for widespread bad loans.

⁵²Jonker and Van Zanden, (1995)

We follow the key assumptions of La Porta et. al., to construct an incentive structure facing the agents involved.⁵³ The model presented below is an adaptation of their simple model of looting developed to explain a study of the Mexican banking system. We are focusing on the incentives for insiders to divert cash for their own benefit. A key assumption is that insiders structure self-dealing transaction to minimise recovery on related-party loans when these default.⁵⁴ Related agents can avoid repaying their loans at the cost of foregoing their equity in the bank. Consequently, related parties repay their bank loans when the value of their equity in the bank is higher, but default otherwise.⁵⁵

Further assumption is that each bank is controlled by a single shareholder who owns a fraction α of the cash flows of the bank and a larger fraction β ($>\alpha$) of the cash flows of an industrial firm (the related party), which he or she also controls. We also assume that the controlling shareholder has effective control over lending decisions - i.e. he can ensure the bank lends to related parties on non-market terms, but needs to engage in costly transactions to avoid repayment in the bad state (thus when the bank lends L to a related party, the controlling party only receives a fraction $\phi(L)$). The model's dynamics develops over two periods, where loans are be financed by deposits (D) and shareholder's equity (E); (r) is the promised interest on deposits. In period 1, the bank lends L to insiders and $E+D-L$ to unrelated parties (both promise to pay R per borrowed dollar). Loans are due in the second period when time ends. The world can be in good state (probability q) or bad state (probability $(1-q)$). In good state the bank recovers all loans, in the bad, only a fraction γ ($<R$) from unrelated loans. Expectedly, loans are unprofitable when made to related parties ($R_r=q*R<1$) and profitable when made to unrelated ($R_u=q*R+(1-q)*\gamma>1$). In equilibrium, insiders do not default in the good state. When $\alpha<\beta$, insiders always default. Below are shown the outcomes of lending policy during different states of the world.

$$(1) \text{ good state: } \alpha^*(R^*(E+D)-r^*D) \geq \beta^*R^*L$$

$$(2) \text{ bad state: } \alpha^*(\gamma(E+D-L)+R^*L-r^*D) < \beta^*R^*L$$

⁵³La Porta et al., (2002), pp.3–6

⁵⁴Auditors of the Banking Committee, at the Ministry of Finance, post 1931, often talk about loans granted without the appropriate reference to the capacity of the debtor to repay; similarly, loans were provided against collateral that was either non-existent or did not cover the value of the loan. For instance, see the audit report for Bulgarska Chernomorksa Banka, CSA 602/1/36; Mackey, (1999), provides similar evidence for 1990s Mexico.

⁵⁵La Porta et al, (2002), p. 4

(3) value of deposits: $D=q^*[r^*D]+(1-q)^*[\gamma^*(E+D-L)]$

(4) in the good state the insider receives share of the profits of the bank: $\alpha^*(R^*(E+D)-r^*D)$, but loses money on looting: β^*R^*L ; in the bad state the insider forgoes equity in the bank, but captures $\beta^*\phi(L)$ from looting.

(5) Expected profits of insider are:

$$E(\pi)=q^*[\alpha^*(R^*(E+D)-r^*D)+\beta^*(\phi(L)-R^*L)]+(1-q)^*[\beta^*\phi(L)]$$

(6) From (3) and (5), expected profit can be rewritten as:

$E(\pi)=\alpha^*[R_u^*(E+D-L)+R_r^*L-D]+\beta^*[\phi(L)-R_r^*L]$, where $R_u(=q^*R+(1-q)^*\gamma)$ and $R_r(=q^*r)$ denote the expected rates of return on loans to unrelated and related parties, respectively.

Thus from (6) the insider picks the level of related lending to maximize her expected profits.

(7) The first order condition for the incentive to lend to related parties is as follows: $\beta^*\phi = \alpha^*(R_u - R_r) + \beta^*R_r$

Easily enough, at the margin the cost from engaging in related lending must exactly equal its benefit. Consider the following example: moving 1 unit of local currency from unrelated parties to related ones. The insider is a shareholder in the related party and receives $\beta^*\phi$, when the unit is diverted from the bank. As a shareholder in the bank, the insider bears a fraction α of the reduction in profits resulting from the change $(R_u - R_r)$. At the same time the insider pays R_r per borrowed unit, as a shareholder of the related firm. Thus, according to the above equation, related lending (or lending through interlocking) is restrained by a high equity stake of the insider in the bank and by attractive opportunities to lend to outsiders. Lending to interlocks increases with the insider's equity stake in the related firm (β) and when the opportunity for attractive borrowing terms on interlocked parties exists. Furthermore, insider lending becomes attractive when credit is rationed and firms meet with difficulties trying to attract outside funds. This is identical to a situation where $\beta > \alpha$ and the world is in a bad state. This model is very useful in describing the situation in Bulgaria during the interwar period, when industry leaders owned stakes in banks, but made most of their profits through non-financial enterprises. Their loyalty was thus to industry and not banks.

Econometrics and Robustness Checks

This part quantitatively examines the influence of interlocking on bank profitability during the depression period. Our data includes the detailed balances for 1930 for 101 banks. The table below summarises the data used in our econometric model.

Table 4

SUMMARY OF DATA ON INTERLOCKED BANKS

Banks (N:101, 1930)	Total Assets (in leva)	Size of Interlocked Assets (in leva)	Interlocked Assets as Percentage of Total (per cent)	Bankrupt (N:)
Total (101)	12 365 118 842	317 709 783	2.6	72
Sofia banks (33)	10 613 754 531	215 404 426	2.1	-
Of which Bankrupt (13)	512 486 583	136 121 074	26.5	13
Countryside Banks (71)	1 751 364 311	102 305 357	5.8	-
Of which Bankrupt (61)	894 586 101	89 085 409	10.1	61
Total (101)	12 365 118 842	317 709 783	2.6	72
With Foreign Share (16)	5 449 915 004	44 354 494	0.8	-
Of which Bankrupt (5)	110 169 314	44 354 483	40.3	5
No Foreign Share (85)	6 915 203 838	273 355 289	4.1	-
Of which Bankrupt (66)	1 296 903 370	180 852 000	14.1	67
Total (101)	12 365 118 842	317 709 783	2.6	72
Bankrupt (72)	1 407 072 684	225 206 483	16.1	-
Survived (29)	10 958 046 158	92 503 300	0.8	-

In our model of bank profitability we use a number of well-known measures and one variable to represent our hypothesis that insider loans were the underlying reason for the failure of the private bank system.

Return to equity is a measure of profitability used by a number of studies.⁵⁶ Due to lack of data on the dividends paid out by banks a proxy has been used – the ratio between profit/loss for 1930 and the capital. A simple model for bank profitability suggests that crucial factors are economies of scale, level of external competition and attitude to risk.⁵⁷ We have included loan quality as a variable, which is represented by the ratio of bad loans, or interlocked loans, and total loans as well as a possibility for foreign capital

⁵⁶ See Goddard, Molyneux, Wilson, (2004), p. 24; also Okazaki, Sawada, Yokoyama, (2005); p.13;

⁵⁷ Smirlock, 1985; p. 3; Bourke, P., (1989), p. 15; Berger, (1995), p. 10; Goddard et al., (2004), p. 26;

share in an institution. The more insider loans were to be found, the weaker the bank is expected to have been. The opposite must have been true regarding foreign share - the more foreign capital was invested in a bank, the bigger and more stable a bank is likely to have been. A baseline model is presented below:

$$ROE = f \{LQ, COM, RISK, ES, EI\}$$

Profitability depends on economies of scale (ES), level of external competition (COM), attitude to risk (RISK), loan quality (LQ) and presence of external investor (EI).

Loan quality is controlled by the variable *Interlock2*, which is a ratio of interlocked loans over total loans. We expect the coefficient on *Interlock2* to be negative, since insider loans were modelled as having negative influence on bank performance and survival chances during an economic crisis. A measure of economies of scale is presented as a variable called *LnSize* - the total assets a bank had in 1930. *LnSize* is expected to have a positive effect on bank performance. External competition - *Com* - is best measured by the number of branches of competing banks in a city or town. In the regression a ranking represents this, where 3 is for largest cities with highest competition between largest number of banks and branches and 1 for least competition. Standard oligopoly theory suggests that the more concentrated a market is, the higher profits producer can command - in the case of banks, higher interest rates can be charged for loans and lower given on deposits. *Com* is expected to exhibit a negative coefficient.

Attitude to risk is difficult to measure. We have introduced a number of variables to control for it - *Levd* (leverage) performed best and were used in the final regression. It is expected that the coefficients will be positive, yet as with *Forgn* (see below) it is not a clear-cut case. Higher risk can amount to higher profits, especially, more loans provided should bring back higher revenue in terms of interest, but in time of economic slowdown, this tendency may be reversed. Presence of external investor, usually foreign is controlled by a binary variable, *Forgn*, which takes the value of 1 when there was foreign capital in the bank, and 0 otherwise. *Forgn* can take a positive value if we consider foreign capital to have been a factor boosting stability of profitability. This, however, is not entirely clear, because foreign capital pulled out during the depression leaving the institutions it used to support exposed to the crisis. It is possible too, that banks with foreign capital presence were very conservative in their investment decisions, and while a secure strategy - this may not have necessarily boosted profitability to any significant level. It

is most like to have only affected the Sofia region. A summary of the variables and their definitions is presented in table 2, below:

Table 2

DESCRIPTION OF VARIABLES

Dependent Variable	ROE 2	ROE: as a measure of profitability; proxied by a ratio of profits over set up capital plus reserves (ROE 2); Ideally, ROE should be calculated using data from stock returns (dividend over the value of stock), however due to data limitations, the ratio of profit over capital is used.
LQ	Interlock2	Percentage of insider loans from total loans;
ES	LnSize	Size of total assets; used in logarithmic form in the regression
RISK	Levd	Ratio of deposits over total capital;
Dummies	COM	Dummy for competition, ranked from 1 (least) to 3 (most) depending on number of banks/branches in town;
	El (Forgn)	1 if foreign capital present in the bank, 0 otherwise;

The final econometric model for the Ordinary Least Squares (OLS) regression is:

$$ROE_i = \beta_0 + \beta_1*(Interlock2) + \beta_2*(LnSize) + \beta_3*(Com) + \beta_4*(Forgn) + \beta_5*(Levd) + \varepsilon_i$$

* * *

Table 3 summarizes basic statistics about the data. Table 3 follows through with the results from the OLS regression on the whole sample, just banks in the Sofia region, just countryside banks, banks with only local capital, and banks with no foreign capital.

Table 3

DESCRIPTIVE STATISTICS

Variables:	Observations	Mean	Std. Dev.	Min	Max
ROE 2	101	2.31	21.04	-107.98	22.75
Interlock2	101	0.21	0.26	0	0.93
Levd	101	3.43	4.75	0.06	37.01
Forgn	101	0.16	0.36	0	1
COM	101	1.90	0.96	1	3
Ln Size	101	16.75	1.65	13.53	22.18

Columns two and three in table 4 show the results of the OLS regression for the whole sample. The coefficient of *Interlock2* is negative across all regression and significant for regression of the whole sample, the countryside and non-foreign banks. The results show that insider lending was not statistically significant for the large banks in Sofia region and the one with foreign capital. This is consistent with our hypothesis. First – insider lending was pointed to as the underlying reason for severely diminished profitability during the depression. Second – our expectation was that it was most widespread across small, private, and commercial banks. Third – we pointed out that their auditors better controlled foreign banks and the reason for the decline in foreign share in the banking sector was the outward flight of foreign capital. All three arguments find support in the econometric analysis.

The positive and significant coefficients on *lnSize* across all regressions suggest that economies of scale matter. Too much competition was bad news for bank profits during the depression, suggested by the highly significant and negative coefficient. The risk attitude variable, *Levd*, is statistically significant. Leveraged position caused distress to banks as the economic slowdown began. Foreign capital is only significant at the 10per cent confidence level and only in the regression of the whole sample. Size rather than presence of external investor was what mattered for profits of large Bulgarian banks.

Table 4

OLS REGRESSION										
DEPENDENT VARIABLE IS ROE2 (PROFITS/TOTAL HOUSE CAPITAL)										
Variable	All Banks		Large Banks		Small Banks		Foreign only		Non - foreign	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
LQ (Interlock2)	-25.7	-3.48***	-3.3	-0.28	-30.7	-3.41***	-23.6	-1.02	-19.0	-2.39**
ES (lnSIZE)	5.0	3.48***	8.6	2.32**	3.7	2.55**	9.73	2.83***	3.0	1.82**
COM (Com)	-11.1	-4.96***	—	—	-8.8	-0.90	-10.3	-4.48***		
El (Forgn)	-6.9	-1.24*	5.9	0.80	7.1	0.69	—	—		
RISK (Levd)	-9.6	-2.07**	1.8	1.45*	-1.8	-1.82**	-0.4	-0.02	-6.7	-1.43**
Intercept	-52.2	-2.18**	-140.3	-2.38**	-30.7	-1.21	-155.9	-2.43**	-19.1	-0.71
R-squared	0.31		0.20		0.24		0.54		0.27	
Adj. R-squared	0.28		0.08		0.21		0.38		0.23	
F-test	(5,95)		8.6(4,28)		1.77	(3,64)	6.92	(4,11)	3.29	(4,80)
N: obs	101		33	68	16	85				

(robust st errors used, *** – significant to 1per cent, ** – significant to 5per cent, * – significant to 10 per cent)

Some robustness checks on the results above follow:

The econometric results presented above show strong relationship between interlocking and bank profitability, especially in light of possible drawbacks/deficiencies in the data. There are a number of ways to improve the exercise. The results can be checked using alternative measures for interlocking. Okazaki et al. measure the number of directors, who had posts in banks and industry and use this to represent interlocking. Their idea can be furthered by gathering data on the number of enterprises interlocked to a bank, or the number of interlocks per director. In my case, however, such data will be very difficult and much too long to gather, to be of practical use. The most effective manner of improving the data set is to polish the *Interlock2* variable by cross referencing data on internal loans. A more extensive look at the available evidence for individual banks can also allow a more in depth survey of bank case studies, which would throw significant light on the personal relationships. This in turn will help us better distinguish between the theories of information asymmetries and pure looting as answers to credit rationing.

Alternative measures of interlocking were used in successive regressions to confirm the robustness of the results. Using *Interlock1* (defined as percentage of insider loans from total assets) provided quantitatively very similar results as in table 3, above. Most problematic were the measurements, constructed to control for attitude to risk. Given the data available from bank balances, we constructed a number of variables. *Levd* was the best performing one in the series of regressions, this why we have chosen it for our model. Tables 5 and 6 below show a list of the variables used in the robustness checks, their definitions and a summary statistics.

Table 5

DESCRIPTION OF ALL VARIABLES
(INCLUDING ONES USED IN THE ROBUSTNESS CHECKS)

Dependent Variables	ROE 1 ROE 2	ROE: as a measure of profitability; proxied by a by a ratio of profits over set up capital plus reserves plus deposits (ROE 1) and profits over set up capital plus reserves (ROE 2); Ideally, ROE should be calculated using data from stock returns (dividend over the value of stock), however due to data limitations, the ratio of profit over capital is used.
LQ (Loan Quality)	Interlock1 Interlock2	Percentage of insider loans from total assets; Percentage of insider loans from total loans;
ES (Economies of Scale)	LnSize	Size of total assets; used in logarithmic form in the regression
RISK (Attitude to Risk)	LoanDepo CapDep	Ratio of total credits to total deposits; Ratio of total capital (set up capital plus reserves plus profits for 1930) over deposits;
	Levd ResDepo Sec	Ratio of deposits over total capital; Ratio of reserves over total deposits; Ratio of Total Security Holdings (government bonds and debentures to the Total Value of Capital + Total Deposits
Dummies	COM (competition)	Dummy for competition, ranked from 1 (least) to 3 (most) depending on number of banks/branches in town;
	EI (Forgn)	1 if foreign capital present in the bank, 0 otherwise;

Table 6

DESCRIPTIVE STATISTICS OF ALL VARIABLES
(including used in Robustness Checks)

Variables:	Observations	Mean	Std. Dev.	Min	Max
Ln Size	101	16.75	1.65	13.53	22.18
ROE 1	101	0.50	8.31	-56.10	14.00
ROE 2	101	2.31	21.04	-107.98	22.75
Interlock1	101	0.14	0.21	0	0.88
Interlock2	101	0.21	0.26	0	0.93
CapDepo	101	1.25	2.35	0.03	15.66
Sec	101	0.06	0.12	0	0.75
LoanDep	101	1.67	1.81	0	11.85
ResDepo	101	0.09	0.19	0	1.07
Forgn	101	0.16	0.36	0	1
COM	101	1.90	0.96	1	3
Levd	101	0.64	0.42	0	1.4
Lev	101	3.43	4.75	0.06	37.01

Conclusion

More than 40 years ago Gerschenkron proposed his thesis of economic development in relative backwardness, where the state acted as a substitute to supposed prerequisites of economic growth. Concentrated and mixed banking sector, where banks were involved in investment, credit provision and commercial practices, is central to such mode of development. Gerschenkron's ideas about the positive effects of such institutions have been strongly contested, especially on the grounds of evidence from the Interwar period. Late developing economies and their universal banking systems, like Germany, Italy and Austria, for different reasons, had very difficult time during the depression. Similarly, developing countries in the periphery of industrialised Europe experienced widespread bank failures.

In theory, lending to friendly groups can ensure higher information inflow and better opportunities for monitoring ones investment - in other words reducing the risk of investment; however, it also means that innovative and possible more profitable projects may be left out. A further danger is the consistent and rational channelling of funds to insiders' projects, because they appear to provide most lucrative returns and an interlocked agent expects to receive a higher payoff from the enterprise rather than his equity in the bank. A formal model of this type of lending, consistent with La Porta et al, was used to present it as institutional looting. This hypothesis was suggested in addition to Jonkers and Van Zanden's model of rational madness in accumulating bad loans in a hyperinflation-deflation dynamics.

To test the theoretical propositions, this paper studies the experience of Bulgarian banks during the years of the Great Depression – a peripheral country with a developing economy and financial sector. A quantitative exercise, to account for the aggregate effects of interlocking on bank performance, was applied on a dataset, gathered from previously unused archival material.

The econometric results confirm the conclusion the theoretical setting - interlocking and insider lending was prevalent in the interwar Bulgarian financial system, not only in the small credit institutions of importance to the local economy, but also amongst large and well-established banks. More often than not, interlocking acted in the direction industry-banks, with a clear aim of leaders of business to use their positions in banks to attract as much funding as possible to their own enterprises. This had catastrophic effects during the long deflationary period during the depression, since both sectors suffered grievous losses.

Our model confirms some established views from the literature on bank profitability. Size of banks mattered for their financial success, competition

reduced profits, while foreign or government backing had positive effects on financial stability. Bad loans given to related parties, however, turned out to be one of the major factors in bank ruins during the outset of the depression in the Bulgarian economy. This conclusion runs contrary to Lamoreaux' major work on insider lending during 19th century east coast US financial structures . Economists and economic historians need to consider a two-way effect of strong links between banks and industry.

Given the prevalence of insider lending as 'looting' in the present day developing countries, this paper points at two solutions. Low profitability will be widespread amongst banks ridden with insider loans, and these will fail during economic crises - a case of natural selection . Encouraging government regulation to deal with the problem can be a second solution. The first suggestion burdens a financial system with long-term inefficiency and then a sharp correction during a downturn. The second - runs against the policy recommendation of the neoclassical paradigm, yet may prove necessary given the number and scale of financial crises over the past decade.

References

Manuscripts:

- Central State Archive of Bulgaria, Sofia: archive file 602k, 1, archive folders: 24–167
archive file 258, 8, archive folder: 2691
archive file 285, 1, archive folders: 140–157
- Sofia Archive, Sofia, Bulgaria, archive file 379k, 2, archive folders: 873–877
887–892

Printed Sources:

- Annual Yearbook of the Bulgarian National Bank (Sofia, 1925–1939).
Izvestia na Bulgarska Narodna Banka, Sofia, monthly volumes (1928–1939).
Statistical Yearbook of Bulgaria (Sofia, 1929–1935).
Statistical Yearbook of the League of Nations (Geneva, 1929–1935).
'Dujaven Vestnik (State Newspaper)', (1933–1934).
Bulgarska Narodna Banka: Arhivite Govoriat, 4 vols. (3 Sofia: BNB, 2004).

Secondary Sources:

- Akerlof, G., Romer, P.** The Economic Underworld of Bank for Profit, Brookings Papers on Economic Activity, 3 (1993).
Aldcroft, D. Europe's Third World – The Economic Periphery in the Interwar Years (Vermont 2006).
Aoki, M., Patrick, H. The Japanese Main Bank System (Oxford 1994).
Avramov, Roumen Komunalniat Kapitalism, 1–3 vols. (Sofia, 2007).
Bairoch, Paul Europe's Gross National Product: 1800–1975', Journal of European Economic History 5/2 (1976), 273–340.
Baran, P. A., Sweezy, P. M. Monopoly Capital (New York, 1966).
Beim, D., Calomiris, D. Emerging Financial Markets (McGraw Hill, 2001).
Bell, John Peasants in Power, Alexander Stamboliiski and the Bulgarian Agrarian National Union, 1899–1923 (Princeton, 1977).
Berger, A. The Profit Structure Relationship in Banking', Journal of Money, Credit and Banking, 27 (1995).
Bernanke, B., and James, H. The Gold Standard, Deflation and Financial Crises in the Great Depression: An International Comparison, in R. Huggard (ed.), Financial Markets and Financial Crises (Chicago, 1992).

Berov, L. The Economic Development of Bulgaria between the Two World Wars 1918–1944 (Sofia, 1971).

Bochev, S Kapitalizmut v Bulgaria (Sofia, 1998 (first edition 1926)).

Bouke, P. Concentration and Other Determinants of Bank Profitability in Europe, North America and Australia, *Journal of Banking and Finance*, 13 (1989).

Cagan, P. Determinants and Effects of Changes in the Stock of Money 1875–1960 (New York, 1965).

Cameron, R. Banking in the Early Stages of Industrialization (Oxford 1967).

Chakalov, A. Stokoviat i Bankov Kredit v Bulgaria, *Bulgarsko Ikonomichesko Delo*, 29/1 (1930).

---, National Income and Outlay of Bulgaria 1924–1945 (in Bulgarian), (Sofia 1946).

Cholakov–Zarin, P. *Bratia Buklovi* (Sofia, 1930).

Christoforov, A. *Kurs po Bankovo Delo* (Sofia, 1946).

Crampton, R. *Bulgaria* (Oxford: Oxford University Press, 2007).

Dadush, Uri and Nielson, Julia *Governing Global Trade*, IMF Publication, (2007).

Daskalov, Roumen *Bulgarskoto Obshtestvo 1878–1935* [The Bulgarian Society, 1878–1939], 2 vols. (Sofia: Gutenberg, 2005).

Edwards, G. *The Role of Banks in Economic Development* (London, 1987).

Eichengreen, B. *Golden Fetters* (Oxford, 1992).

Feinstein, C., TEMIN, P., TONIOLO, G. *Banking, Currency, and Finance in Europe Between the Wars* (Oxford: Oxford University Press, 1995).

FEINSTEIN, C., Temin, P., Toniolo, G. *International Economic Organisation: Banking, Finance, and Trade in Europe between the Wars*, in C. Feinstein, Temin, P., Toniolo, G., (ed.), *Banking, Currency, and Finance in Europe between the Wars* (Oxford, 1995).

Fohlin, C. *Universal Banking in Pre-World War I Germany: Model or Myth*, *Explorations in Economic History*, 36/4 (1999).

---, *Finance, Capitalism and Germany's Rise to Industrial Power* (Cambridge Cambridge University Press, 2007).

Forsyth, Douglas and Verdier, Daniel (ed.) *The Origins of National Financial Systems: Alexander Gerschenkron Reconsidered* (Routledge Explorations in Economic History, London: Routledge 2003).

Galbraight, J. *The Great Crash 1929* (6 edn.; Boston, 1988).

Gerschenkron, A. Economic Backwardness in Historical Perspective: A Book of Essays (Cambridge, MA, 1962).

Goddard, J., Molyneux, P., Wilson, J. The Profitability of European Banks, The Manchester School, 72/3 (2004).

Good, David and Ma, Tongshu The Economic Growth of Central and Eastern Europe, 1870-1989', European Review of Economic History, 3/3 (1999), 103-38.

Green, E., Lampe, J., Stiblar, F., (ED.) (ed.) Crisis and Renewal in Twentieth Century Banking, (Ashgate, 2004).

Hardrach, G Banking and Industry in Germany in the Interwar Period 1919-1939, Journal of European Economic History, 13 (1984).

Hoshi, T., Kashyap, A., Scharfstein D. Corporate Structure, Liquidity, and Investment: Evidence from Japanese Industrial Groups', Quarterly Journal of Business and Economics, 106 (1991).

Hristov, N. Usoviata za Zdrav I Tvorcheski Kredit, Journal of the Bulgarian Economic Society, 4 (1939).

Ito, Takaioshi The Japanese Economy (Cambridge MA: MIT Press, 1992).

Ivanov, M. Politicheskite Igrai s Vunshnia Dulg, 1929-1934 (Sofia, 2001).

Ivanov, Martin and Tooze, Adam Convergence or Decline on Europe's Southeastern Periphery? Agriculture, Population, and GNP in Bulgaria, 1892-1945, The Journal of Economic History, 67/3 (2007).

James, H., Lindgren, H., Teichova, A. The Role of Banks in the Interwar Economy, (Cambridge 1998).

Jelavich, B. History of the Balkans, (Cambridge, 1983).

Johnson, S., La Porta, R., Lopez-de-Silanes, F., Schleifer, A. 'Tunneling ', The American Economic Review 90/2 (2000).

Jonker, J., Van Zanden, J. L. Method in Madness? Banking Crises between the Wars in International Comparison, in C. Feinstein (ed.), Banking, Currency, and Finance in Europe between the Wars, (Oxford Oxford University Press 1995).

Kaser, M., Radice, E. The Economic History of Eastern Europe since 1918 (Aldershot, 1995).

Kenbauer, H., Weber, F. Multinational banking in the Danube basin, in Levy-Leboyer and Nussbaum Teichova (ed.), Multinational Enterprise in Historical Perspective (Cambridge 1986).

Kindleberger, C. The World in Depression 1929-1939 (London, 1973).

---, A Financial History of Western Europe (Boston 1984).

Kostadinova, T. Bulgaria, 1879-1946, The Challenge of Choice (New York, 1995).

Kovachev, N. Bankoviat Kapital, Zvezda, 11/16 (1933).

Lamoreaux, N. Insider Lending - Banks, Personal Connections and Economic Development in Industrial New England (Cambridge 1994).

Lampe, J., Jackson, M. Balkan Economic History, 1550–1950, From Imperial Borderlands to Developing Nations, (Bloomington, 1982).

Lampe, J. The Bulgarian Economy in the Twentieth Century (London, 1986).

La Porta, R., Lopez-de-Silanes, F., Zamarrip, G. Related Lending, NBER Working Paper, 8848 (2002).

Lazarov, N. Istoria na Bulgarskata Narodna Banka I Bankovoto Delo v Bulgaria (Sofia, 1997).

Levine, Ross Financial Development and Economic Growth: views and agenda', Journal of Economic Literature, 35/35 (1997), 688–726.

---, Finance and Growth: Theory and Evidence, NBER Working Paper, (2004).

Mackey, M. Report on the comprehensive evaluation of the operations and functions of The Fund for the Protection of Bank Savings "FOBAPROA", (New York, 1999).

Mazower, M. Greece and the Interwar Economic Crisis, (Oxford Oxford University Press, 1991).

Mizruchi, M. The Structure of Corporate Political Action: Inter firm Relations and Their Consequences (London, 1992).

Mokyr, J. Has the Industrial Revolution been crowded out? Some reflections on Crafts and Williamson, Explorations in Economic History, 24/3 (1987).

Morck R., Nakamura, M. Banks and Corporate Control in Japan, The Journal of Finance, 54/1 (1999).

Morys, M. South-Eastern European Growth Experience in European Perspective, 19th and 20th Centuries, Southeast European Monetary Network (1; Sofia, 2006).

Muntag, R., Holderness, B. Crisis, Recovery and War (New York, 1991).

Obstfeld, M. and Taylor, A. Global Capital Markets – Integration, Crisis, and Growth, (Cambridge 2004).

Palairot, M. The Balkan Economies c. 1800–1914 – Evolution Without Development, (Cambridge 1997).

- Pasvolsky, L.** Bulgaria's economic Position (Washington 1933).
- Pohl, M, Tortella, T., VAN DER WEE, H.,** (ed.), A Century of Banking Consolidation in Europe, (Ashgate 2001).
- Rajan, R.** Insiders and Outsiders: The Choice between Informed and Arm's -Length Debt, *The Journal of Finance*, 47/4 (1992).
- Rajan, R., Zingales, L.** Financial Dependence and Growth, *The American Economic Review*, 88/3 (1998).
- Rajan, R. and Zingales, L.** Saving Capitalism from the Capitalists, (Princeton 2003).
- Rothschild, J.** East Central Europe between the Two Wars (Seattle 1974).
- Saint-Etienne, C.** The Great Depression 1929–1938, Lessons of the 1980s, (Stanford CA, 1984).
- Schumpeter, J.** Business Cycles, 2 vols. (New York 1939).
- Smirlock, M.** Evidence on the (Non) Relationship between Concentration and Profitability in Banking, *Journal of Money, Credit and Banking*, 17/1 (1985).
- Smith, A.** The Wealth of Nations, (London, 1991).
- Soref, M. and M. Zeitlin,** Finance capital and the internal structure of the capitalist class in the US, in M. and Schwartz Mizruchi, M. (ed.), *Intercompany Relations: The Structural Analysis of Business* (New York, 1987).
- Teichova, A.** Rivals and Partners 1880–1938, in P. Cottrell, Lindgren, H., and Teichova, A. (ed.), *European Industry and Banking Between the Wars*, (Leicester University Press 1992).
- Teichova, Levy-Leboyer and Nussbaum** Historical Studies in International Corporate Business, (Cambridge 1989).
- Temin, P.** Lessons from the Great Depression (Cambridge 1989).
- Temin, P., Voth, H-J.** Credit rationing and crowding out during the industrial revolution: evidence from Hoare's Bank, 1702–1862, *Explorations in Economic History*, 42 (2005).
- Tetsuji, O., Michiru, S., Kazuki, Y.** Measuring the Extent and Implications of Director Interlocking in the Prewar Japanese Banking Industry, *Journal of Economic History* 4(2005).
- Tilly, R.** German Banking 1850–1914: development assistance for the strong, *Journal of European Economic History* 15 (1986).
- , *Coercion, Capital and European States* (Blackwell's, 1992).
- Trew, A.** Finance and Growth: A Critical Survey, *The Economic Record*, 82 (2006).

Weiss, Stiglitz and Credit Rationing in Markets with Imperfect Information, *The American Economic Review*, 71/3 (1981).

Wellhoner, V., and Wixforth, H. Bank-Industry Relations in Theory and Practice (Upsala, 1989).

DISCUSSION PAPERS

- DP/1/1998 **The First Year of the Currency Board in Bulgaria**
Victor Yotzov, Nikolay Nenovsky, Kalin Hristov, Iva Petrova, Boris Petrov
- DP/2/1998 **Financial Repression and Credit Rationing under Currency Board Arrangement for Bulgaria**
Nikolay Nenovsky, Kalin Hristov
- DP/3/1999 **Investment Incentives in Bulgaria: Assessment of the Net Tax Effect on the State Budget**
Dobrislav Dobrev, Boyko Tzenov, Peter Dobrev, John Ayerst
- DP/4/1999 **Two Approaches to Fixed Exchange Rate Crises**
Nikolay Nenovsky, Kalin Hristov, Boris Petrov
- DP/5/1999 **Monetary Sector Modeling in Bulgaria, 1913–1945**
Nikolay Nenovsky, Boris Petrov
- DP/6/1999 **The Role of a Currency Board in Financial Crises: The Case of Bulgaria**
Roumen Avramov
- DP/7/1999 **The Bulgarian Financial Crisis of 1996–1997**
Zdravko Balyozov
- DP/8/1999 **The Economic Philosophy of Friedrich Hayek (The Centenary of his Birth)**
Nikolay Nenovsky
- DP/9/1999 **The Currency Board in Bulgaria: Design. Peculiarities and Management of Foreign Exchange Cover**
Dobrislav Dobrev
- DP/10/1999 **Monetary Regimes and the Real Economy (Empirical Tests before and after the Introduction of the Currency Board in Bulgaria)**
Nikolay Nenovsky, Kalin Hristov
- DP/11/1999 **The Currency Board in Bulgaria: The First Two Years**
Jeffrey B. Miller
- DP/12/1999 **Fundamentals in Bulgarian Brady Bonds: Price Dynamics**
Nina Budina, Tsvetan Manchev
- DP/13/1999 **Currency Circulation after Currency Board Introduction in Bulgaria (Transactions Demand, Hoarding, Shadow Economy)**
Nikolay Nenovsky, Kalin Hristov
- DP/14/2000 **Macroeconomic Models of the International Monetary Fund and the World Bank (Analysis of Theoretical Approaches and Evaluation of Their Effective Implementation in Bulgaria)**
Victor Yotzov
- DP/15/2000 **Bank Reserve Dynamics under Currency Board Arrangement for Bulgaria**
Boris Petrov
- DP/16/2000 **A Possible Approach to Simulate Macroeconomic Development of Bulgaria**
Victor Yotzov
- DP/17/2001 **Banking Supervision on Consolidated Basis (*in Bulgarian only*)**
Margarita Prandzheva

- DP/18/2001 **Real Wage Rigidity and the Monetary Regime Choice**
Nikolay Nenovsky, Darina Koleva
- DP/19/2001 **The Financial System in the Bulgarian Economy**
Jeffrey Miller, Stefan Petranov
- DP/20/2002 **Forecasting Inflation via Electronic Markets Results from a Prototype Experiment**
Michael Berlemann
- DP/21/2002 **Corporate Image of Commercial Banks (1996–1997) (*in Bulgarian only*)**
Miroslav Nedelchev
- DP/22/2002 **Fundamental Equilibrium Exchange Rates and Currency Boards: Evidence from Argentina and Estonia in the 90's**
Kalin Hristov
- DP/23/2002 **Credit Activity of Commercial Banks and Rationing in the Credit Market in Bulgaria (*in Bulgarian only*)**
Kalin Hristov, Mihail Mihailov
- DP/24/2001 **Balassa – Samuelson Effect in Bulgaria (*in Bulgarian only*)**
Georgi Choukalev
- DP/25/2002 **Money and Monetary Obligations: Nature, Stipulation, Fulfilment**
Stanislav Natsev, Nachko Staykov, Filko Rosov
- DP/26/2002 **Regarding the Unilateral Euroization of Bulgaria**
Ivan Kostov, Jana Kostova
- DP/27/2002 **Shadowing the Euro: Bulgaria's Monetary Policy Five Years on**
Martin Zaimov, Kalin Hristov
- DP/28/2002 **Improving Monetary Theory in Post-communist Countries – Looking Back to Cantillon**
Nikolay Nenovsky
- DP/29/2003 **Dual Inflation under the Currency Board: The Challenges of Bulgarian EU Accession (*in Bulgarian only*)**
Nikolay Nenovsky, Kalina Dimitrova
- DP/30/2003 **Exchange Rate Arrangements, Economic Policy and Inflation: Empirical Evidence for Latin America**
Andreas Freytag
- DP/31/2003 **Inflation and the Bulgarian Currency Board**
Stacie Beck, Jeffrey B. Miller, Mohsen Saad
- DP/32/2003 **Banks – Firms Nexus under the Currency Board: Empirical Evidence from Bulgaria**
Nikolay Nenovsky, Evgeni Peev, Todor Yalamov
- DP/33/2003 **Modelling Inflation in Bulgaria: Markup Model (*in Bulgarian only*)**
Kalin Hristov, Mihail Mihailov
- DP/34/2003 **Competitiveness of the Bulgarian Economy**
Konstantin Pashev
- DP/35/2003 **Exploring the Currency Board Mechanics: a Basic Formal Model**
Jean-Baptiste Desquilbet, Nikolay Nenovsky

- DP/36/2003 A Composite Tendency Indicator for Bulgaria's Industry
(*in Bulgarian only*)
Tsvetan Tsalinsky
- DP/37/2003 The Demand for Euro Cash: A Theoretical Model and Monetary Policy Implications
Franz Seitz
- DP/38/2004 Credibility Level of the Bulgarian Exchange Rate Regime, 1991–2003: First Attempt at Calibration (*in Bulgarian only*)
Georgi Ganev
- DP/39/2004 Credibility and Adjustment: Gold Standards Versus Currency Boards
Jean-Baptiste Desquilbet, Nikolay Nenovsky
- DP/40/2004 The Currency Board: "The only game in town" (*in Bulgarian only*)
Kalin Hristov
- DP/41/2004 The Relationship between Real Convergence and the Real Exchange Rate: the Case of Bulgaria
Mariella Nenova
- DP/42/2004 Effective Taxation of Labor, Capital and Consumption in Bulgaria
Plamen Kaloyanchev
- DP/43/2004 The 1911 Balance of Payments of the Kingdom of Bulgaria
(*in Bulgarian only*)
Martin Ivanov
- DP/44/2004 Beliefs about Exchange Rate Stability: Survey Evidence from the Currency Board in Bulgaria
Neven T. Valev, John A. Carlson
- DP/45/2004 Opportunities of Designing and Using the Money Circulation Balance (*in Bulgarian only*)
Metodi Hristov
- DP/46/2005 The Microeconomic Impact of Financial Crises: The Case of Bulgaria
Jonathon Adams-Kane, Jamus Jerome Lim
- DP/47/2005 Interest Rate Spreads of Commercial Banks in Bulgaria (*in Bulgarian only*)
Michail Michailov
- DP/48/2005 Total Factor Productivity Measurement: Accounting and Economic Growth in Bulgaria (*in Bulgarian only*)
Kaloyan Ganev
- DP/49/2005 An Attempt at Measurement of Core Inflation in Bulgaria
(*in Bulgarian only*)
Kalina Dimitrova
- DP/50/2005 Economic and Monetary Union on the Horizon
Dr Tsvetan Manchev, Mincho Karavastev
- DP/51/2005 The Brady Story of Bulgaria (*in Bulgarian only*)
Garabed Minassian
- DP/52/2006 General Equilibrium View on the Trade Balance Dynamics in Bulgaria
Hristo Valev
- DP/53/2006 The Balkan Railways, International Capital and Banking from the End of the 19th Century until the Outbreak of the First World War
Peter Hertner

- DP/54/2006 Bulgarian National Income between 1892 and 1924
Martin Ivanov
- DP/55/2006 The Role of Securities Investor Compensation Schemes for the Development of the Capital Market (*in Bulgarian only*)
Mileti Mladenov, Irina Kazandzhieva
- DP/56/2006 The Optimal Monetary Policy under Conditions of Indefiniteness (*in Bulgarian only*)
Nedyalka Dimitrova
- DP/57/2007 Two Approaches to Estimating the Potential Output of Bulgaria (*in Bulgarian only*)
Tsvetan Tsalinski
- DP/58/2007 Informal Sources of Credit and the "Soft" Information Market (Evidence from Sofia)
Luc Tardieu
- DP/59/2007 Do Common Currencies Reduce Exchange Rate Pass-through? Implications for Bulgaria's Currency Board
Slavi T. Slavov
- DP/60/2007 The Bulgarian Economy on Its Way to the EMU: Economic Policy Results from a Small-scale Dynamic Stochastic General Equilibrium Framework
Jochen Blessing
- DP/61/2007 Exchange Rate Control in Bulgaria in the Interwar Period: History and Theoretical Reflections
Nikolay Nenovsky
Kalina Dimitrova
- DP/62/2007 Different Methodologies for National Income Accounting in Central and Eastern European Countries, 1950–1990
Rossitsa Rangelova
- DP/63/2008 A Small Open Economy Model with a Currency Board Feature: the Case of Bulgaria
Iordan Iordanov
Andrey Vassilev
- DP/64/2008 Potential Output Estimation Using Penalized Splines: the Case of Bulgaria
Mohamad Khaled
- DP/65/2008 Bank Lending and Asset Prices: Evidence from Bulgaria
Michael Frömmel
Kristina Karagyzova
- DP/66/2008 Views from the Trenches: Interviewing Bank Officials in the Midst of a Credit Boom
Neven Valev
- DP/67/2008 Monetary Policy Transmission:
Old Evidence and Some New Facts from Bulgaria
Alexandru Minea
Christophe Rault