

Doctoral Thesis

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THE 1931 FINANCIAL CRISIS IN AUSTRIA AND HUNGARY

A CRITICAL REASSESSMENT

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DECLARATION OF AUTHORSHIP

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ABSTRACT

In this thesis, I re-investigate the 1931 financial crisis in Austria and Hungary with the help of new data compiled from primary sources. Our knowledge about the causes of these calamities is much less extensive than about the German crisis. The aim of my research is to provide for a better understanding of the Central European crises of 1931.

Chapter 1 examines the role of international and domestic forces behind the crisis in Austria. Two newly constructed micro-level datasets demonstrate that a domestic factor, exposure to weakly performing industrial enterprises, was essential in accounting for the insolvency and possibly also for the illiquidity of the four universal banks that came under distress between 1925 and 1931. In Chapter 2, the focus shifts to Hungary, where both the national historiography and the international literature documented a currency crisis. A new database on the financial system and macroeconomic indicators reveal that the banking system played a critical role in the calamities and the country experienced a twin crisis in 1931. Chapter 3 zooms in on a particular aspect of the crisis: the political factors behind the weakness of the two countries' banking systems. Facing social demands but their hands tied by the macroeconomic trilemma, the authorities of both countries had to resort to (ab)using the banking system to provide clandestine economic stimulus. Political interventions into banking encouraged imprudent lending and contributed to the vulnerability of the two banking systems and thereby to the crisis of 1931.

Together these findings underscore the economic importance and the political risk of the banking system. They further emphasize the dramatic, and seemingly insurmountable challenges of nation building that Austria and Hungary faced in the interwar years.

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TABLE OF CONTENTS

Introduction	8
Data and methodology	11
Historical context and findings	13
Chapter 1 - The Austrian banking crisis of 1931	22
Historical background and literature	24
Overview of the banking system	27
Exposure to foreign creditors	31
Domestic creditors	37
Konzern and bank solvency	40
Causes and Triggers	52
One bad apple	58
Appendix	60
Chapter 2 - The Hungarian twin crisis of 1931	62
Review of the literature	63
Data and method	65
Pre-crisis currency weakness	67
Pre-crisis banking system weakness	77
Event analysis	87
Missing the wood for the trees	95
Appendix	96
Chapter 3 - The political origins of the Austrian and Hungarian banking crises in 1931	102
The historical context	104
The post-war political contract	107
Austria: commitment to industry	113
Hungary: commitment to agriculture	125
What if...?	133
Conclusion	135
Primary sources	140
Bibliography	142

LIST OF TABLES

- 1.1 The number of financial accounts in the bank database
- 1.2 Foreign currency mismatch (million Austrian Schilling)
- 1.3 The number of financial accounts in the Konzern database
- 1.4 Theoretical calculations for insolvency thresholds
- 1.5 Liquidity and solvency measures for the four Konzerns (million Austrian Schilling)
- A1.1 The number of financial accounts in the bank database - detailed
- A1.2 The representativeness of the bank database, 1929 (million Austrian Schilling)
- 2.1 Description of the bank database
- 2.2 Budget deficit (million pengő)
- 2.3 National debt denominated in foreign currency (million pengő)
- 2.4 Balance-of-payments (million pengő)
- 2.5 Growth and consolidation in the banking sector
- 2.6 Non-performing loan (NPL) calculation for all financial institutions
- 2.7 Non-performing loan (NPL) calculation for institutions with agricultural lending over 75 per cent
- 2.8 Trigger analysis (million pengő)
- A2.1 The representativeness of the bank database
- A2.2 Background information on the non-performing loan (NPL) estimation
- 3.1 Accounting fraud at the four universal banks which were bailed out
- 3.2 The structure of three mergers among universal banks in the 1920s

LIST OF FIGURES

I.1 The economic activity index

- 1.1 The structure and growth of the Austrian financial system by total assets
- 1.2 The equity and liability side of universal banks' and Sparkassen's aggregate balance sheet
- 1.3 Foreign and domestic liabilities
- 1.4 The annual change in the foreign creditors of the banking system
- 1.5 Rediscount from the central bank to the banking system
- 1.6 The asset side of Sparkassen's aggregate balance sheet
- 1.7 Universal banks' foreign and domestic creditors by creditor type
- 1.8 The exposure of the four banks to good and bad Konzern companies in 1927 based on companies' debt
- 1.9 Exposure of the four banks to good and bad industries based on companies' debt in 1927
- 1.10 The reserves of the Austrian National Bank (million Austrian Schilling)
- 1.11 The rediscount of the Austrian National Bank (million Austrian Schilling)
- 2.1 Trade account (million pengő)
- 2.2 U.S. wholesale price of wheat and corn in Chicago (US dollar/bushel)
- 2.3 Reserves of the Hungarian National Bank (million pengő)
- 2.4 The structure of the Hungarian banking system by total assets
- 2.5 The equity and liability side of the banking system's aggregate balance sheet
- 2.6 The annual change in foreign and domestic currency deposits and credits (million pengő)
- 2.7 The asset side of the financial system's aggregate balance sheet (1926=100)
- 2.8 The monthly change in foreign and domestic currency deposits (million pengő)
- 2.9 The reserves of the Hungarian National Bank (100 = 7 Jan. 1927, 7 Feb. 1929, 7 March 1931)
- 2.10 Rediscount (100 = 7 January for each year)
- 3.1 Rediscount practices of the HNB following the 1929 currency crisis (million pengő)

INTRODUCTION

1931 was a monumental year in European economic history. It witnessed a series of financial crises following the collapse of Austria's largest bank, the Credit-Anstalt, and these swiftly spread to Hungary, Germany, and other Central and South-East European countries. Finally, the shockwaves hit Britain, forcing sterling to leave the gold standard, which signalled the demise of the interwar international exchange rate system. The basic tenets of post-war international cooperation, commitment to fixed exchange rates and the free flow of goods and capital, were shattered, and the world embarked on the road to disintegration.

This thesis was written with the aim of deepening our understanding of the events in 1931. In particular, the three chapters investigate what brought about the 1931 financial crises in Austria and Hungary, two key countries in the region, so far overlooked in the broader international literature.

Eichengreen's interpretation of the 1931 crisis is the primary reference for all scholars and this thesis is no exception. In his seminal work, Eichengreen argues that these financial crises resulted from a 'transfer problem'.¹ The gold exchange standard was a link between the monetary systems of interwar economies. When the Federal Reserve Bank increased its interest rate in 1928, other countries were compelled to follow if they wanted to avoid losing gold to the United States. This, however, could not stop the outflow of capital from the periphery, and debtor nations were deprived of foreign exchange. Those economies that had raised substantial external debt in the preceding years saw their balance-of-payments collapse. As they could no longer obtain sufficient foreign currency, their ability to service their international debt was undermined. Interest rate hikes depressed global trade and the ensuing recession put increasing pressure on government budgets. Foreign investors developed doubts about the ability of debtors to maintain their peg to gold, and these doubts transpired into actions in 1931. 'By withdrawing their deposits in anticipation of devaluation, foreigners' response heightened the likelihood of the very event they feared.'²

¹ Eichengreen, *Golden fetters*, pp. 259-64. The term was originally applied to the same issue arising from the German reparation problem which was debated by Keynes, 'The German transfer problem' and Ohlin, 'The German transfer problem'.

² Eichengreen, *Golden fetters*, p. 262.

Among Central European countries, Germany's interwar financial history is the most extensively researched and the investigation of the German crisis of 1931 goes back over three decades.³ Recent studies have extensively tested the Eichengreen narrative in the German context. Whether foreign or domestic factors had more importance in bringing about the German crisis has been a subject of intense debate. Ferguson and Temin's findings contradict those of Eichengreen and later Accominotti and Eichengreen in this regard.⁴ Ferguson and Temin propose that instead of international factors in the form of foreign capital flight, domestic political factors were the primary drivers.⁵ They argue that the pressure to increase government spending and political upheaval were building inflationary expectations, which culminated in a currency crisis. Another contentious point of the discussion on the German crisis has been the type of crisis that the country experienced. Ferguson and Temin and Eichengreen have argued that the country had a currency crisis. Adalet, on the other hand, has argued for the critical role that the banking system played in the crisis.⁶ Schnabel has also challenged the mainstream position by arguing that instead of a currency crisis, Germany experienced a twin episode.⁷ Schnabel's findings demonstrate that the banking system had a prominent role in the German crisis. She posits that the weaknesses of the currency and the banking system developed independently and in parallel during the 1920s but culminated in a twin crisis in 1931. The political factors behind the German crisis have also been addressed in the literature. All scholars of the German crisis accord with Eichengreen that the shock was, at least partially, caused by such factors. Finally, several works have investigated the spread and the transmission channels of the crisis.⁸ These key references on the German crisis provided the contextual framework for my thesis.

In comparison with Germany, we know much less about the unfolding of the crisis in the rest of Central Europe, particularly Austria and Hungary, even though the traditional narrative posits that the crisis first emerged in Austria, spread immediately to Hungary, and only then advanced to Germany. We thus have a modest understanding of the 1931 crisis in the countries which preceded Germany in the series of events. Austria is the better-researched case, thanks to

³ Key studies on the German crisis published prior to Eichengreen's account: Balderston, 'German banking' and James, 'The causes of the German banking crisis'.

⁴ Accominotti and Eichengreen, 'The mother of all sudden stops'; Eichengreen, *Golden fetters*.

⁵ Temin and Ferguson, 'Made in Germany'.

⁶ Adalet, 'Fundamentals, capital flows'.

⁷ Schnabel, 'The German twin crisis'; Schnabel, 'The role of liquidity'; Schnabel, 'Reply'; Temin, 'The German crisis'.

⁸ Accominotti, 'London merchant banks'; Ritschl and Sarferaz 'Currency versus banking'.

the detailed investigation of the Credit-Anstalt collapse by Schubert and Weber.⁹ These accounts, however, are dated and were written before Eichengreen placed the crisis into a new international context. Other studies focused on particular aspects of the crisis, including the pre-1931 failure of the second largest Austrian bank,¹⁰ the universal banks,¹¹ or industrial structures¹², but did not sufficiently reflect on the international context. Hungary is ‘virgin territory’ in a sense that its 1931 crisis has not yet undergone thorough investigation. Péteri provides a good starting point for the assessment of the Hungarian monetary system,¹³ but more comprehensive historiographical works are dated, do not delve into the investigation of the causes of the 1931 crisis, and do not place local events into an international narrative.¹⁴ Other findings on the financial and monetary history of the interwar period offer useful insights, but once again, do not integrate their findings into a global narrative.¹⁵

My aim in this thesis has been to analyse the causes of the Austrian and Hungarian crises in 1931 and place them into an international context. I achieve this, on the one hand, by relying on the mainstream, international literature as well as on local, national sources, and, on the other hand, by investigating the questions that have been raised and debated in the German context and are thus well known to western economic historians. These are the following: (i) whether the crisis had primarily external or domestic causes; (ii) whether it was a banking crisis or a currency crisis; and (iii) to what extent political factors were responsible for the weakness of the banking system and thus indirectly for the events of 1931. These questions are relevant to the two case studies under scrutiny as these are the issues which the existing literature has not yet touched on or has yet to settle on. Tackling these questions for Austria and Hungary hence establishes a common Central European platform on the 1931 crisis. With this, the thesis contributes to improving the comprehensiveness of our understanding of the 1931 episode.

⁹ Schubert, *The Credit-Anstalt*; Weber, ‘Vor dem großen Krach’.

¹⁰ Cottrell, ‘Mushrooms and dinosaurs’.

¹¹ Eigner, ‘Bank-industry networks’; Kernbauer and Weber, ‘Multinationales Banking’; Mosser and Teichova, ‘Investment behaviour’; Stiefel, ‘For better, for worse’; Weber, ‘Universal banking’; Weber, ‘From imperial’.

¹² Teichova and Cottrell, ‘Industrial structures’.

¹³ Péteri, *Global Monetary Regime*.

¹⁴ Bácskai, *Az Osztrák Nemzeti Banktól*; Berend, *Decades of crisis*; Berend and Ránki, *Magyarország gazdasága*; Berend and Szuhay, *A tőkés gazdaság*; Botos, *Az önálló jegybank*.

¹⁵ E.g. Ferber, ‘Lépeshátrányban’; Pogány, ‘Párhuzamos történetek’; Pogány, ‘Válságok és választások’; Pogány, ‘Financial crises’; Pogány, ‘Zwillingskrisen’; Tomka, *A magyarországi pénzintézetek*.

DATA AND METHODOLOGY

I have collected and digitized the balance sheets and profit and loss accounts of Hungarian and Austrian financial institutions for the period of 1926-33 and 1925-33, respectively. The databases include the financial statements of over 600 Hungarian and 300 Austrian financial institutions. The representativeness of the Hungarian database is approximately 71-95 per cent, whereas the Austrian dataset covers the entire financial system.¹⁶

The primary source for the Hungarian database is the *Hungarian Compass* and for the Austrian database the *Compass Finanzielles Jahrbuch*. The annual Compass publications date back to the pre-war period and compiled information on industrial enterprises and financial institutions in all of the lands of the Austro-Hungarian Monarchy. The information presented in the Compass was similar to what we today would call a company's annual report.

Admittedly, both of my databases have limitations. First, the balance sheets of Austrian and Hungarian financial institutions do not represent the fair market value of their assets. When a loan became delinquent or defaulted, banks did not acknowledge this, did not reduce the value of this asset, and did not book an equivalent loss on this asset. Instead, they continued to represent this item on their balance sheet as if it had been a performing asset. Second, the profit and loss accounts of the Austrian universal banks are not reliable for the assessment of their profitability because they booked interest income on non-performing loans. Finally, the databases are annual, whereas for the quantitative analyses on the German banking system, researchers benefited from monthly data.

The first two limitations have made the assessment of the banking system's insolvency a challenge for both countries. Since only the first limitation applied to Hungary, here I was able to rely on the banks' profit and loss accounts to understand their deteriorating solvency position. In the case of Austria, I had to find a more creative solution because Austrian banks' financial statements were suffering from both the first and the second type of limitation. The solution was to collect the financial statements of the most important assets of the Viennese universal banks. This database includes the balance sheets and profit and loss accounts of approximately 160-80 industrial enterprises for the period of 1925-30. These corporations were owned and/or financed

¹⁶ See Table A1.2 in the Appendix of Chapter 1 for Austria and Table A2.1 in the Appendix of Chapter 2 for Hungary which describe in detail the representativeness of the bank databases.

by the four Austrian universal banks that experienced distress¹⁷ during the period under observation - the Credit-Anstalt, the Boden-Credit-Anstalt, the Verkehrsbank, and the Unionbank - and thus, in all likelihood, they comprised most of the assets of these banks. As a result, this database can serve as the basis for deducing relevant information on the financial health of the distressed universal banks from the financial health of their own industrial base. The source for this database is the *Compass Kommerzielle Jahrbuch*.

The third data limitation, the lack of high frequency data, has been an obstacle to the analysis of the events right before the crisis. Therefore, I have complemented the abovementioned micro-level databases with macroeconomic data for both countries from contemporary official publications. I have digitized and integrated these data for the period of 1925-1933.¹⁸ Information on macroeconomic indicators and government finances is annual and somewhat sporadic, whereas the data on the monetary system are monthly or weekly and comprehensive. This macroeconomic and monetary database was essential not only for the assessment of the triggers behind the two countries' crisis but also for understanding the macroeconomic environment.

In terms of data, the thesis makes important contributions. It is the first study to have developed a disaggregated, bank-level database at a high level of representativeness for the Austrian and Hungarian financial systems for the period leading up to 1931. In addition, it is also the first to have constructed a similarly comprehensive and detailed, company-level database for the industrial network of those four Austrian universal banks that experienced distress during this period.

Data availability and data limitations have determined the methodological framework of the thesis. Each chapter builds an analytical narrative in which macro-level and micro-level investigations are combined. This approach is similar to that of Schnabel on the German great banks.¹⁹ Analogous to Schnabel, I also draw on databases, which disaggregate the banking system to the level of individual banks and can differentiate them by type, exposure to certain risks, and financial health. This has allowed me to account for the role of micro-level characteristics and identify national specificities, such as the excessive exposure of Hungarian banks to agricultural loans, the reliance of some Hungarian banks on state guarantees, or the importance of the industrial

¹⁷ Distress is defined as financial difficulties which end up in a failure, a merger with another bank, or bailout.

¹⁸ The Primary Sources section includes the list of all contemporary statistical publications and archival sources that I have used to build the macroeconomic databases for the two countries.

¹⁹ Schnabel, 'The German twin crisis'.

network in the financing of the Viennese universal banks, and the significantly varying level of insolvency across the four distressed Austrian universal banks.

HISTORICAL CONTEXT AND FINDINGS

Together with Germany, Austria and Hungary lost World War I, witnessed the disintegration of their multi-ethnic empire, and experienced hyperinflation after the war. Just like Germany, their economies were also stabilized with international help, they also experienced a financial crisis in 1931, and they also responded to this by introducing capital controls, and thereby breaking away from the post-war settlement. As in Germany, the political repercussions were self-inflicted international isolation and rising far-right radicalism. The parallels with Germany are striking. Yet, compared to the economic demise of Weimar Germany, the causes and the unfolding of the crisis of 1931 in Austria and Hungary received much less scholarly attention, especially in the international literature.

World War I was followed by economic, social, and political turmoil in Austria and Hungary. In Hungary, a revolution toppled the Habsburgs in 1918, then a Bolshevik takeover followed, which briefly ruled the country in 1919. In 1920, most of Hungary fell under Romanian occupation. Eventually, the former political and economic elite, made up of large agricultural landowners, reinstated their power by 1921.²⁰ Austria's tumultuous political transformation from the Habsburg Empire to the Republic of German-Austria was aggravated by the economic shock as the centre lost its traditional agricultural and industrial connections with the rest of the former Monarchy. The country experienced severe food shortages. Although the former imperial elite remained in power, their regime was weak and challenged by militant opposition from the left and right.²¹

The Peace Treaty of St. Germain in 1919 (Austria) and the Peace Treaty of Trianon in 1920 (Hungary) codified the penalties that the winners imposed on the two countries after the war. They lost approximately two-thirds of their territory and population and they had to pay reparations to the Allies. The terms of the Peace Treaties were in both countries regarded as a political humiliation. The dissolution of the centuries old construct, the Habsburg Empire, reconfigured and

²⁰ Ungváry, *A Horthy-rendszer*, pp. 118-38.

²¹ März, *Austrian banking*, pp. 273-317, 385-428.

severely limited Austria's and Hungary's access to resources and markets and thus brought about a catastrophic economic dislocation in these two countries.²² The Peace Treaties thus further exasperated the weak political position of the ruling elites who were already facing domestic political turmoil. Their legitimacy was undermined by the lost war and the broken Empire, and by all the consequences that followed.

The war also re-dealt the political cards within most societies. The power of the working classes significantly increased and the right to vote became a widespread demand. Former political elites who already had trouble justifying the purpose of the prolonged and destructive war, especially in countries like Austria and Hungary, which ended up on the losing side, could no longer ignore the political demands of the wider population. Expanding the franchise, providing state-financed social services, and introducing regulations to improve the living and working conditions of the working class were demands that the political elite had to address in order to maintain its leadership. All these, however, required public funds. The elites were thus in desperate need of capital to properly respond to the economic, social, and political challenges and to solidify their power.²³

Since domestic capital had fled or had been obliterated, and the Austrian and Hungarian governments could not obtain sufficient financing from abroad in the years following the war, they had to resort to their respective central banks to accommodate the ever-increasing expenses on social demands by printing money. Hyperinflation followed in both countries, which domestic policy alone could not eliminate. The political elite simply did not have the legitimacy to impose higher taxes on a population that was unwilling and unable to finance the government deficit. The economic elite's refusal to bear the burdens of the state through capital levy resulted in the fall of two high profile Ministers of Finance, Joseph Schumpeter in Austria and Lóránt Hegedűs in Hungary. No one was prepared to take financial responsibility for post-war reconstruction. The Austrian and Hungarian governments remained impotent and hyperinflation persisted.²⁴

Eventually, both countries rid their economies from hyperinflation through international support. A foreign loan arranged by the League of Nations for Austria in 1923 and for Hungary in

²² Berend, 'Agriculture', pp. 151-2; Teichova, 'Industry', pp. 223-7.

²³ Berend, 'Agriculture', pp. 152-62; Bődök, 'Politikai erőszak', pp. 85-108; März, *Austrian banking*, pp. 273-317, 385-428; März, 'Die große Depression', pp. 410-1; Tomka, *Az első világháború következményei*, pp. 7-23.

²⁴ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 438-44; Marcus, *Credibility, confidence*, pp. 1-49; März, *Austrian banking*, pp. 318-46; 457-68.

1924 supported the introduction of a new currency in both countries.²⁵ The stabilization loans were provided by foreign financiers who were willing to lend to these countries primarily due to the participation and implied guarantee of the League.²⁶ The loans were conditional upon a period of close surveillance by the League until the government budget was brought into balance, and on regular reporting to the Financial Committee of the League even thereafter, until the loans were fully repaid. The League of Nations and the Bank of England placed delegates to the two countries, who personally oversaw that the Austrian and Hungarian governments' and the newly established Austrian and Hungarian central banks' processes and decisions were in line with their demands. During the first two years of the reconstruction, the League's representative had veto right over government spending. The League of Nations demanded a balanced government budget from the countries while the Bank of England, acting directly, or through the Financial Committee of the League, required full commitment to a legislatively set gold parity through an independent central bank that refrained from financing the government debt and constrained its liquidity provision to the economy.²⁷

Reconstruction was a success in both countries - at least it so appeared until the late 1920s. Economic recovery followed in both countries in the aftermath of the stabilization loans. Economic performance, as measured by the Albers and Uebele economic activity index and depicted on Figure I.1, improved by 26 per cent and 28 per cent from 1925 to mid-1929 for Hungary and Austria, respectively.²⁸

The reconstruction also re-opened both countries' access to foreign capital markets and they were able to attract substantial capital from international financial markets between 1925 and 1929. Hungary's net foreign capital inflow between 1925 and 1930 was approximately 29 per cent of its national income of 1929 and the same for Austria was 52 per cent.²⁹ In comparison, Germany attracted more than three times as much foreign capital as Austria and Hungary combined, and this

²⁵ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 520-38, 544-50; Marcus, *Credibility, confidence*, pp. 50-93; März, *Austrian banking*, pp. 478-514.

²⁶ Flores and Decorzant, 'Going multilateral'.

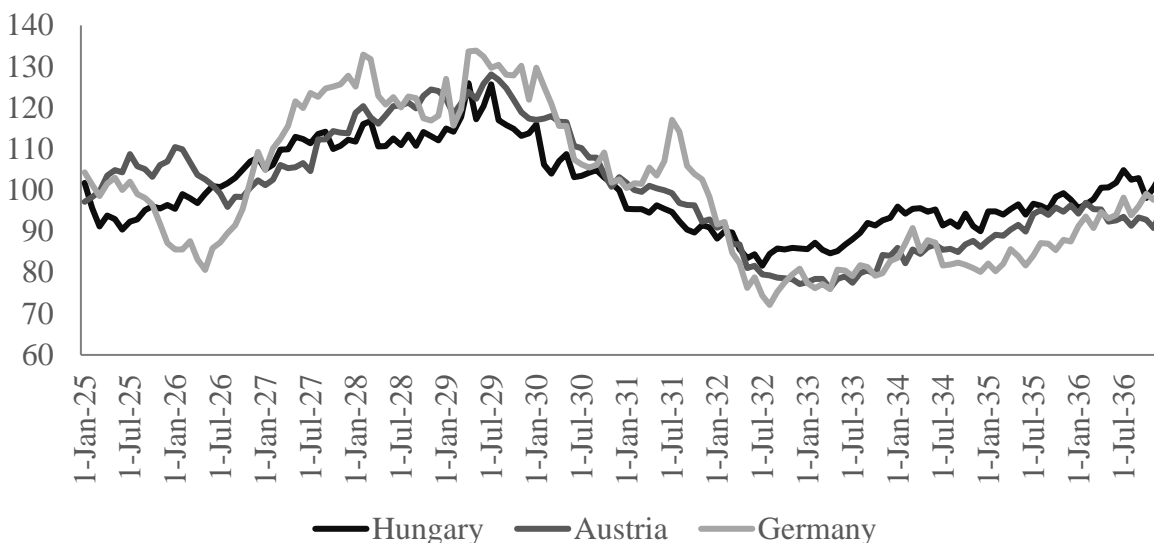
²⁷ BoEA, files OV9/145, 146, 148, 234, 235.

²⁸ Albers and Uebele, 'The global impact'.

²⁹ For Hungary, see the country's balance-of-payments in Table 2.4 in Chapter 2. The Austrian figure has been calculated by the author based on *Financial Compass*, 1931, pp. 146-7; Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen'; Butschek, *Österreichische Wirtschaftsgeschichte*.

volume amounted to approximately 32 per cent of the country's GNP in 1930.³⁰ Foreign capital financed imports and contributed to Austria's and Hungary's economic recovery.³¹

Figure I.1 The economic activity index



Source: Albers and Uebele, 'The economic activity index'. Data generously provided by the authors.

The tide turned, however, as economic activity began to deteriorate in mid-1929 in both countries. By the end of 1930, economic performance fell back to its early 1925 level (Figure I.1). In 1928 and 1929, foreign capital raised in international financial markets was fleeing the Austrian economy and the net volume of foreign capital more than halved in Hungary from 1928 to 1929. As Chapter 2 explains, Hungary experienced a currency crisis at this time. Austria was able to avoid a similar fate due to its central bank's hefty foreign reserve base.

The financial crises of 1931 occurred after almost two years of economic recession. They constituted a turning point in the two countries' interwar economic history: they had led both Austria and Hungary to abandon the post-war settlement and threw both economies into a deep and prolonged depression. Hungary introduced capital controls on 17 July and Austria did the same on 8 October 1931.³² Both countries defaulted on their foreign currency denominated loans, Hungary

³⁰ Feinstein, Temin, and Toniolo, *The European economy*, p. 83; Ritschl, 'Reparations', p. 66.

³¹ Klein, Schulze, and Vonyó, 'How peripheral', pp. 75-8.

³² Ellis, 'Exchange control', pp. 30-7, 88-92.

in late 1931, Austria in 1932.³³ The depth of the two countries' economic distress was comparable to that of Germany (Figure I.1). The depression reached its abyss in mid-1932 in Hungary and early 1933 in Austria. At that point, Hungary's and Austria's economic activity index was 18 per cent and 24 per cent below the early 1925 level, respectively. For Hungary, it took four years to climb back and by the spring of 1936, its economic activity index was at the same level as in early 1925. Austria was not able to achieve this by the end of 1936, where the index unfortunately ends.

The three chapters of my thesis investigate the causes of this watershed event, the financial crisis of 1931 in Austria and Hungary, and analyse the following questions: (i) whether the crisis had international or domestic causes; (ii) whether it was a banking or a currency crisis; and (iii) whether political factors contributed to the weakness of the banking system and indirectly to the 1931 crisis. The origins of 1931 reach back to the outcome of the war and the post-war settlement and, hence, the three chapters of the thesis discuss the 1920s in detail.

Chapter 1 focuses on Austria and examines whether domestic or international factors played a more important role in bringing about the 1931 meltdown. The existing literature remains inconclusive. Eichengreen argues that after the country's monetary and economic stabilization, Austria became highly indebted in short-term, foreign currency denominated loans. When the Credit-Anstalt announced its losses on 11 May 1931, foreign creditors started fleeing the country and brought about its economic and political collapse.³⁴ A number of studies complement this reasoning by stressing domestic causes: the universal banking system and the excessive exposure of universal banks to underperforming industrial enterprises;³⁵ these banks' pursuit of the 'Danubian strategy' in order to re-instate their pre-war sphere of business influence;³⁶ and management failure at the largest banks.³⁷

I re-investigate this issue with new data and analyse the insolvency and illiquidity of the four universal banks that came under distress between 1925 and 1931, the Unionbank, the Verkehrsbank, the Boden-Credit-Anstalt, and the Credit-Anstalt. The results show that the

³³ Ellis, 'Exchange control', pp. 53, 91. These are the dates of the introduction of the partial moratorium on foreign currency denominated loans. At this stage, the countries had not yet defaulted on their League of Nations loans, only on other foreign currency denominated obligations. They later entered a full moratorium.

³⁴ Eichengreen, *Golden fetters*, pp. 262-9.

³⁵ März, *Austrian banking*, pp. 347-66; Mosser and Teichova, 'Investment behaviour', pp. 122-57; Schubert, *The Credit-Anstalt*, pp. 38-9; Stiefel, 'The bankers' view', pp. 10-2; Teichova and Cottrell, 'Industrial structures', pp. 31-55; Weber, 'From imperial', pp. 344-50.

³⁶ Eigner, 'Die Konzentration', pp. 481-4; Schubert, *The Credit-Anstalt*, pp. 35-6; Stiefel, 'The reconstruction', pp. 178-93; Weber, 'Austrian banking', pp. 76-98.

³⁷ Schubert, *The Credit-Anstalt*, p. 40; Stiefel, 'For better, for worse', pp. 178-93; Weber, 'From imperial', p. 340.

universal banking structure, that is, these banks' high exposure to domestic industrial enterprises was behind the four banks' insolvency. These banks were insolvent as early as 1925 due to the anaemic performance of their industrial connections. The data also demonstrate that the Credit-Anstalt, which became the 'acquirer of last resort' for the other three universal banks, could have avoided its own demise had it not absorbed the assets of one bank, the Unionbank.

The data do not provide sufficient certainty on the four banks' liquidity prior to the date when they decided to seek a bailout. The Boden-Credit-Anstalt was probably illiquid before this date, the Verkehrsbank was likely not, but evidence is conflicting about the Unionbank and the Credit-Anstalt. Nonetheless, it is certain that no foreign creditor flight occurred before the date these banks announced their weakness, and only in the case of the Credit-Anstalt did a foreign creditor flight occur after the announcement. While it is uncertain whether the Credit-Anstalt was illiquid when it turned to the central bank for support on 8 May 1931, it is clear that after this date the bank came under enormous pressure due to the flight of both domestic and foreign creditors.

Chapter 2 shifts the attention to Hungary and its financial crisis in 1931. The existing literature defines the Hungarian episode as a currency crisis.³⁸ Eichengreen has pointed out that primary producers, highly dependent on foreign capital, experienced a shock once the Federal Reserve started increasing its interest rate.³⁹ They had difficulty earning the foreign exchange necessary for servicing their debt and they had to significantly reduce their imports and thereby deflate their economy. When the Austrian Credit-Anstalt announced its difficulties, investors, assuming a close connection between the two banking systems, withdrew their capital from Hungary as well. Since the country already suffered from balance-of-payments weaknesses, it immediately experienced a currency crisis. Other narratives closely tie in with Eichengreen's position and thus the Hungarian crisis is regarded as a currency crisis in which the banking system was only a victim of monetary weakness.⁴⁰

³⁸ Reinhart and Rogoff identify a currency crash with the annual depreciation of 15 per cent or more of the given currency against an anchor currency. Reinhart and Rogoff, *This time is different*, Table 1.1. In a fixed exchange rate regime, like the one Austria and Hungary had in the interwar period, the depreciation, however, is not detectable through the official exchange rate. In this case, the depreciation can be identified through the deterioration of the reserve backing of the currency. That is, in the current case under observation, a currency crisis can be identified through the decline of the central bank's reserve levels.

³⁹ Eichengreen, *Golden fetters*, pp. 223-6, 230-41, 259-64, 270.

⁴⁰ Berend, *Decades of crisis*; Berend and Ránki, *Magyarország gazdasága*; Berend and Szuhay, *A tőkés gazdaság*; Ferber, 'Lépeshátrányban'; James, *The end of globalization*; Pogány, 'Válságok és választások'; Tomka, *A magyarországi pénzügyintézetek*. Recently, Pogány has proposed that Hungary experienced a 'multiple crisis' but the

In Chapter 2, I challenge this consensus, demonstrating that the Hungarian crisis in 1931 was a ‘twin crisis’, a banking and a currency crisis occurring simultaneously and reinforcing each other, as in the case of Germany in Schnabel’s interpretation.⁴¹ Relying on new data, I show that the Hungarian banking system was insolvent as early as 1927 due to its exposure to failing agricultural loans. I also demonstrate that, in line with Eichengreen’s argument, the Federal Reserve Bank’s retrenchment in 1928 induced a balance-of-payments crisis in Hungary in 1929. The currency was weakened by this event, but the bailout money received from international central banks and the restrictive policies of the Hungarian National Bank re-established and maintained the stability of the pengő. The 1931 crisis emerged in the banking system and, due to the central bank’s commitment to the gold peg, and its parallel commitment to supporting the banking sector, the weakness of the financial and monetary systems became interconnected between 15 June and 15 July 1931, culminating in a twin crisis.

Chapter 3 focuses on both countries and sheds light on the political factors that weakened the banking system and hence indirectly led to the crisis of 1931. Eichengreen’s interpretation of the Great Depression and the crises of 1931 can be traced back to political factors.⁴² World War I, he claims, brought a shift in political power, which rendered the commitment to the gold standard less credible in the interwar period than it had been before 1914. Politicians could no longer ignore unemployment and the social repercussions of economic downturns. Due to the changing political dynamic, fiscal discipline, a key condition to sustaining a currency peg, was much more elusive than prior to World War I. Inflationary fears were prevalent during the 1920s, even in countries that had no past experience with hyperinflation.⁴³ Financiers were thus more doubtful about authorities’ commitment to the fixed exchange rate system in general than they had been prior to World War I. Eichengreen hence argues that the capital flight of 1928 and 1931 arose due to financiers’ doubts about highly indebted countries’ ability to maintain the peg to gold.

crisis mechanism, the channels among the various types of crises, and the differentiation between cause and effect have remained unclear in this study. Pogány, ‘Financial crises’; Pogány, ‘Zwillingskrisen’.

⁴¹ Reinhart and Rogoff identify a banking crisis through events: bank runs which lead to the closure, merger, takeover, or the bailout of several banks of a financial system or the same of one critically important bank in the financial system. Reinhart and Rogoff, *This time is different*, Table 1.2. Kaminsky and Reinhart define a twin crisis as an event when a currency crisis and a banking crisis occur simultaneously; most often the start of the banking crisis precedes that of the currency crisis but the two become entwined and reinforce one another in a ‘vicious spiral’. Kaminsky and Reinhart, ‘The twin crises’.

⁴² Eichengreen, *Golden fetters*, pp. 6-12.

⁴³ Straumann, ‘Rule rather than exception’.

Chapter 3 shares the view with Eichengreen and others that political factors greatly contributed to the 1931 crises in Austria and Hungary but both countries demonstrate a specific mechanism. By applying the framework of Calomiris and Haber, Chapter 3 shows that while the golden fetters put limitations on the ability of governments to spend and borrow, these restrictions were overcome by relying on or using the banking system to implement the ‘economic stimulus’ that the governments themselves were not allowed to provide.⁴⁴ New data and archival evidence reveal that Austrian and Hungarian authorities intervened into their respective banking systems and set incentives in a manner that induced the banks to lend in accordance with political objectives. Such intervention into and cooperation with the banking system encouraged imprudent lending and this contributed to the increasing non-performing loan portfolio of the major banks of both countries. It also created the perception in the financial system that weak banks would be saved in times of trouble. State intervention thus increased the vulnerability of the banking systems of Austria and Hungary and thereby contributed to the crisis of 1931.

Chapter 3 is able to resolve the questions provoked by the findings of the previous chapters. In particular, Chapter 1 raises the question: why were the Austrian Unionbank and the other weak universal banks in Vienna merged into the Credit-Anstalt instead of being wound up? The liquidation of the universal banks would have required the acknowledgement of their past losses. Chapter 3 explains that this was politically unacceptable because it would have potentially increased unemployment in the industries financed by the Viennese banks. Subsequently, it would have led to social unrest, undermining political stability and the power base of the Austrian government. Similarly, Chapter 2 raises the question: why did Hungarian banks heavily expose themselves to the weak and increasingly unprofitable agricultural sector, despite restrictions on the tradability of land? Chapter 3 argues that agricultural lending was a political priority as most of the Hungarian labour force was agricultural and the constituency of the governing party was dominated by the landowning classes. The governments of both countries introduced incentives and cooperated with the banking system so that saving bad industrial assets in Austria and lending to agriculture in Hungary would be the rational choice for the banks. Banks in both countries went along, despite the obvious financial imprudence involved, because either their interests coincided with those of the state (Austria) or they received financial incentives from the state (Hungary).

⁴⁴ Calomiris and Haber, *Fragile by design*.

With these measures, governments achieved that the banking system operated according to their political objectives.

CHAPTER 1 - THE AUSTRIAN BANKING CRISIS OF 1931

ONE BAD APPLE SPOILS THE WHOLE BUNCH

The current literature is inconclusive on the relative importance of foreign and domestic factors in bringing about the Austrian financial crisis in 1931. This chapter offers new data to bring further clarity to this issue and emphasises the importance of a domestic factor: universal banks' exposure to industrial enterprises. Industrial enterprises were the universal banks' main borrowers and creditors. During the 1920s, they did not perform well, and made the universal banks insolvent. The Credit-Anstalt, which became an 'acquirer of last resort' for weak universal banks during the 1920s, may have avoided its own demise had it been spared of one bank's, the Unionbank's assets.

The role of banks in bringing about crises has recently received renewed interests. What we have re-learned since 2007 is the banking system's enormous ability to hide insolvency behind liquidity. Even though banks may carry non-performing, perhaps 'sub-prime' loans, they can still continue to operate as long as they are liquid, and there is no regulator, who would force them to write off these assets and raise new capital. It is hence theoretically possible that the number of defaulted borrowers only reveals itself once the crisis has already erupted. This has been particularly problematic during the Great Recession in the United States and researchers have identified the same problem in the context of the Great Depression of the United States.⁴⁵ This chapter shows that a Central European country had the same experience in 1931.

The debacle of Austria's largest bank, the Credit-Anstalt (CA), was a global turning point in the Great Depression. The CA's losses were publicly announced on 11 May 1931, and in the following months, not only Austria but several other countries in Central Europe and beyond experienced financial distress. The gold exchange standard began to disintegrate, the international

⁴⁵ Eichengreen, *Hall of mirrors*; Postel-Vinay, 'What caused Chicago bank failures'.

flow of goods and capital became hindered by emerging trade and exchange system blocs, and what was previously a global recession deepened into a prolonged depression.⁴⁶

What factors led to 11 May 1931? The historiography offers a number of explanations for the distress of the CA and the Austrian banking sector. One argument places the Austrian story into an international context and posits that the flight of foreign creditors played a pivotal role in bringing about the banking crisis.⁴⁷ On the other hand, there are explanations that emphasize the domestic nature of the crisis.⁴⁸

The purpose of this chapter is to reassess the arguments of the historiography regarding the causes of the Austrian crisis in 1931 in light of new data compiled for this research. The chapter presents two micro-level datasets. One includes the balance sheets and profit and loss statements of the financial system between 1925 and 1933, bank-by-bank. This dataset covers approximately 300 financial institutions for each year. The purpose of this dataset is to obtain an overview of the entire financial system, how it evolved in the years preceding the crisis, and how important foreign creditors were in sustaining this banking system. The other database incorporates the balance sheets and profit and loss statements for the ‘Konzerns’, in other words, the industrial network of four universal banks. These four banks - the Verkehrsbank (VB), the Unionbank (UB), the Boden-Credit-Anstalt (BCA), and the CA - were the universal banks, which experienced distress⁴⁹ between 1925 and 1931. This dataset includes approximately 160-80 enterprises for each year. The purpose of this collection is to uncover the extent to which the Konzern, the heart of the universal bank, contributed to the distress of these four banks.

These data sources together allow a close insight into the factors that contributed to the failure of the VB, the UB, and the BCA in the 1920s, and the reasons that had led to the CA’s application for state support on 8 May 1931, and eventually to the demise of the Austrian banking system in 1931.

⁴⁶ Eichengreen, *Golden fetters*; Kindleberger, *The world in depression*; Obstfeld, ‘The Great Depression as a watershed’, pp. 12-25.

⁴⁷ Eichengreen, *Golden fetters*, pp. 262-9; Fior, ‘The financial instability’, pp. 132-5; Kindleberger, *The world in depression*, pp. 145-7; Schubert, *The Credit-Anstalt*, pp. 33-9, 44-6.

⁴⁸ Eigner, ‘Die Konzentration’, pp. 481-4; März, *Austrian banking*, pp. 347-66; Mosser and Teichova, ‘Investment behaviour’, pp. 122-57; Schubert, *The Credit-Anstalt*, pp. 35-40; Stiefel, ‘The bankers’ view’, pp. 10-2; Stiefel, ‘The reconstruction’, pp. 178-93; Stiefel, ‘For better, for worse’, pp. 178-93; Teichova and Cottrell, ‘Industrial structures’, pp. 31-55; Weber, ‘From imperial’, pp. 340-50; Weber, ‘Austrian banking’, pp. 76-98.

⁴⁹ The chapter defines distress as financial difficulties which end up in a failure, a merger with another bank, or a bailout.

The chapter is structured as follows. The next section offers an overview of the historical context and the existing literature, followed by an overview of the banking system. Afterwards, I discuss the financial system's exposure to foreign creditors, followed by the analysis of the sector's domestic creditors. Next, I assess the performance of the Konzerns of the four universal banks that discontinued their operations, and subsequently demonstrate that the Konzerns were at the heart of each bank's demise. The final section concludes.

HISTORICAL BACKGROUND AND LITERATURE

The Austro-Hungarian Monarchy was on the losing side after World War I and the Peace Treaties dismembered the Empire and deprived Austria of approximately two-thirds of its territory and population. The country was also liable to paying reparations to compensate the winners for their war losses and, since its assets were used as collateral against the reparations, the country could not borrow. In the immediate post-war period, the state hence resorted to using the printing press of the central bank to finance the expenses arising from the dislocation caused by the war.

The state's excessive reliance on central bank financing produced hyperinflation in the first two years of the 1920s. When the situation became untenable, the help of the League of Nations was sought and the economy was stabilized through a large foreign loan arranged by the international organization. The loan was conditional on a reconstruction scheme overseen by the League, which implemented a new currency, the Austrian Schilling (AS), established an independent central bank, the Austrian National Bank (ANB), and, through very strict surveillance measures, ensured a balanced government budget.⁵⁰ By 1924, Austria was back on its feet and its economy was guided by contemporary liberal economic tenets: a currency fixed to gold, free capital mobility, fiscal stringency, and a restrictive central bank.

What followed the stabilization was, according to the historiography, a 'borrowing binge'. The Austrian state as well as its banking system excessively exposed themselves to short-term foreign creditors during the second half of the 1920s.⁵¹ Banks borrowed short-term and in foreign currency and extended these resources to Austrian industry as long-term loans denominated in Austrian Schillings, thereby generating currency and maturity risks. Authors argue that, due to

⁵⁰ Marcus, *Credibility, confidence*, pp. 1-93.

⁵¹ Eichengreen, *Golden fetters*, pp. 262-9; Fior, 'The financial instability', pp. 132-5; Kindleberger, *The world in depression*, pp. 145-7.

Central Europe's high levels of indebtedness, foreign creditors had been doubtful about the stability of Central European currencies even before the announcement of the CA's weak financials on 11 May 1931.⁵² When the largest Austrian bank's losses became public, foreign creditors started fleeing the financial system and the currency and maturity mismatches produced gaping holes in banks' balance sheets and brought about their demise. 'In Britain, Germany, Austria, and Hungary alike, the withdrawal of foreign deposits was the catalyst for the financial crisis that shattered the gold standard system.'⁵³

The historiography also blames the fragility of Austrian financial institutions on a peculiar organizational structure, the universal bank, inherited from the period of the Austro-Hungarian Empire and familiar to researchers of the German financial system.⁵⁴ Austria's largest financial institutions were universal in a sense that they combined commercial and investment banking activities, as they were lenders as well as owners of industrial enterprises. Their links to industry had originated in the pre-1914 period and they all had their own Konzern: an industrial network into which the banks invested either as shareholders or lenders, but in the majority of the cases, as both.⁵⁵ Most of Austrian industrial joint-stock corporations were under the majority ownership of one of the Austrian universal banks.⁵⁶ World War I and the subsequent years of hyperinflation further cemented the connections as banks converted much of their industrial loans into equity in order to preserve the value of their invested capital in the face of ever-rising prices.⁵⁷ The strengthening tie between banks and industry, nevertheless, had serious repercussions. Authors argue that the stabilization arranged by the League of Nations brought about 'no real recovery after 1924'⁵⁸ and hence Austrian universal banks were exposed to the 'fitful performance' of industry.⁵⁹

⁵² Eichengreen, *Golden fetters*, p. 261.

⁵³ Eichengreen, *Golden fetters*, p. 262.

⁵⁴ März, *Austrian banking*, pp. 347-66; Mosser and Teichova, 'Investment behaviour', pp. 122-57; Schubert, *The Credit-Anstalt*, pp. 38-9; Stiefel, 'The bankers' view', pp. 10-2; Teichova and Cottrell, 'Industrial structures', pp. 31-55; Weber, 'From imperial', pp. 344-50.

⁵⁵ Unfortunately, the definition of the Konzern is vague in the literature. It is not defined how long a universal bank needs to be financially connected to the industrial enterprise, how much financing it needs to provide to it, and in what form (equity or debt) before the latter 'officially' becomes the former's Konzern member. This chapter defines Konzern members as those enterprises about which the universal bank made such a claim. The *Financial Compass*, 1926-35 has been consulted in order to identify the enterprises that the universal banks regarded as their own Konzern members.

⁵⁶ Rudolph, *Banking and industrialization*, p. 120.

⁵⁷ Schubert, *The Credit-Anstalt*, pp. 33-5; Weber, 'From imperial', pp. 344-50.

⁵⁸ Kindleberger, *The world in depression*, p. 144.

⁵⁹ Weber, 'Universal banking', p. 19.

This reduced the banks' profitability, and the loans provided to the Konzerns tied up financial institutions' capital that otherwise could have found more profitable enterprises.

Another explanation blames Austrian universal banks' vulnerability on their excessive expansion to the non-Austrian geographies of the Austro-Hungarian Monarchy.⁶⁰ Prior to World War I, Austrian universal banks were market leaders not only within Austria but across the whole territory of the former Austro-Hungarian Monarchy. The Peace Treaty of St. Germain, however, erected a wall across these connections in the form of new borders and, due to nostrification laws, the assets of the Austrian universal banks were exposed to the threat of confiscation. Despite the changes, Austrian universal banks sought to rebuild and maintain their former sphere of business influence. However, the pursuit of the 'Danubian strategy' had become increasingly burdensome for the large Viennese universal banks and required substantial investment. At the same time, it also promised low returns because Austrian banks' affiliates could only compete in the 'lemon' segment abroad, which then increased the banks' non-performing loan portfolio.⁶¹

Finally, some have pointed out that management and organizational problems at the CA, led to chaotic reporting and bad decision-making and this led to the bank's collapse in 1931.⁶²

The literature has extensively assessed the causes of this crisis but does not provide clear guidance on the relative importance of the various factors that played into Austrian banks' distress. It is hence uncertain to what extent the crisis was due to the insolvency of the banking system resulting from domestic factors, rather than a liquidity crisis due to the flight of foreign capital. Schubert argues in connection with the CA's distress that the departure of foreign creditors was the fundamental cause for the CA's illiquidity, while the other factors explain the bank's insolvency.⁶³ The chapter provides new data to re-assess these arguments not only in connection with the CA, but also regarding the other universal banks that experienced distress in the 1920s, the VB, the UB, and the BCA.

My databases help me assess the impact of the universal banking structure and the flight of foreign creditors on these four banks' insolvency and illiquidity. I will demonstrate that these four universal banks were insolvent as far back as 1925. The reason behind their insolvency was the

⁶⁰ Eigner, 'Die Konzentration', pp. 481-4; Schubert, *The Credit-Anstalt*, pp. 35-6; Stiefel, 'The reconstruction', pp. 178-93; Weber, 'Austrian banking', pp. 76-98.

⁶¹ Schubert, *The Credit-Anstalt*, p. 37.

⁶² Schubert, *The Credit-Anstalt*, p. 40; Stiefel, 'For better, for worse', pp. 178-93; Weber, 'From imperial', p. 340.

⁶³ Schubert, *The Credit-Anstalt*, pp. 33-9, 44-6.

weak performance of their industrial network, their Konzerns. My analyses also reveal that the CA's absorption of the weak assets of the other three universal banks directly contributed to the CA's demise. The three universal banks that disappeared through the years from 1926 to 1929 were not equally weak. There was one bad apple among them, the UB, whose Konzern had an unsustainably high debt level, was loss-making, and its performance was deteriorating from 1925. In comparison and in absolute terms as well, the Konzerns of the VB, the BCA, and the CA were in a much better condition and were on an improving trend. This suggests that if the CA had been spared of the UB's assets, it may have survived.

Evidence on the four banks' liquidity is less conclusive than on their insolvency due to data limitations. The available data confirm that no foreign creditor flight occurred before the announcement date of the four banks' distress. If the banks were illiquid before this date, it was due to a domestic creditor flight, resulting from the deterioration of their Konzern. Regarding the CA it is unclear whether the bank was illiquid on 8 May 1931 when it turned to the ANB for help. It is, however, certain that after this date, the flight of both foreign and domestic creditors generated an enormous liquidity pressure on this bank.

OVERVIEW OF THE BANKING SYSTEM

I have collected the balance sheets and profit and loss statements of Austrian joint-stock financial institutions, bank-by-bank from 1925 until 1933.⁶⁴ The dataset is the product of primary research based on a contemporary statistical publication, the *Financial Compass*. The *Financial Compass* offers a description of the activities of financial institutions (similarly to an annual report) as well as their financial statements.

Table A1.1 in the Appendix shows that in the *Financial Compass* published in 1926, there were 398 individual financial institutions and of these, 284 reported their financial statements, while 114 only provided limited information on their operation. As the table makes clear, financial institutions' reporting behaviour improved towards the end of the period under observation and in the 1931 publication there were only 22 non-reporting entities. The institutions that did not report their financials were predominantly small operations, which ended up falling into distress, were merged into competitors, or were liquidated. Table 1.1 provides an overview of the number of

⁶⁴ The database includes underwriting banks (Pfandbriefinstitute), banks limited by shares (Aktien-Kredit Banken), savings banks (Sparkassen), and significant credit associations (bedeutendere Kreditvereinigungen).

financial institutions that are in the final database. Table A1.2 in the Appendix assesses the representativeness of this database and demonstrates that this compilation improves on the comprehensiveness of previous data collections.

Table 1.1 The number of financial accounts in the bank database

	1925	1926	1927	1928	1929	1930	1931	1932	1933
Balance sheet	276	269	274	311	318	314	315	312	309
Universal bank	8	8	6	6	6	5	5	5	5
Other bank	44	40	37	36	32	30	30	29	25
Mortgage bank	8	8	8	8	8	8	9	10	10
Savings bank	216	213	223	261	272	271	271	268	269
Profit and loss statement	267	261	268	303	315	310	311	306	293
Universal bank	8	8	6	6	5	5	4	4	4
Other bank	39	37	35	33	31	29	29	27	18
Mortgage bank	8	8	7	8	8	8	9	10	9
Savings bank	212	208	220	256	271	268	269	265	262

Unquestionably, these financial statements were in some respect guilty of misrepresentation, but if we read them with attention to such risks, they can be effectively relied on to construct a comprehensive overview of the financial system. Schubert has pointed out that the misleading attribute of these accounts is that they represent non-performing loans as solid, profit-producing assets.⁶⁵ This chapter also finds and explains later that Viennese banks booked interest on loans even if they did not actually receive that interest. If the financial statements are analysed by taking into consideration these caveats, they can provide very useful information. This study draws conclusions only based on data that one can reasonably rely on and specifically points out when data should be handled with care.

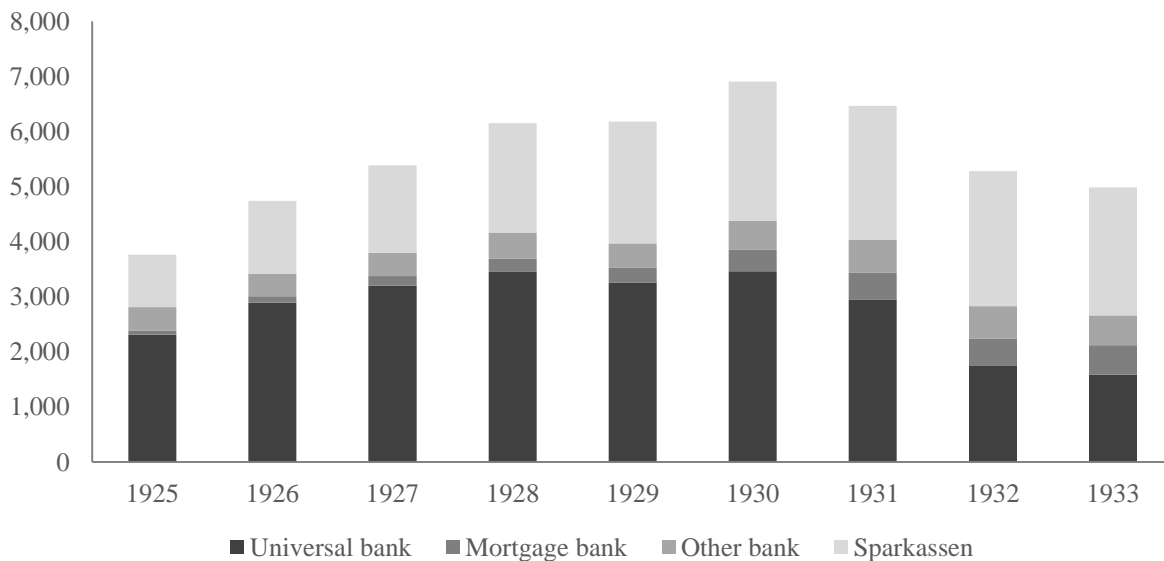
Table 1.1 shows that there were four main types of Austrian joint-stock financial institutions during the interwar period: universal banks, Sparkassen (savings banks), mortgage banks, and other banks. Figure 1.1 illustrates the growth of the sector's total assets by type of financial institution. In 1930, total assets were 83 per cent higher than in 1925. In 1925, they amounted to 37 per cent of the nominal GDP, while the same ratio in 1930 was a whopping 60 per cent.⁶⁶ These figures imply the financial system's dynamic growth following the stabilization.

⁶⁵ Schubert, *The Credit-Anstalt*, p. 25.

⁶⁶ Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen'.

Mortgage banks experienced the most vigorous advance during this period by expanding their assets almost five-fold. However, their overall share within the whole sector continued to remain minor, at around 6-10 per cent. On the contrary, other banks were the weakest performers. These institutions experienced a decline in 1926 and 1929 and the overall increase in their total assets from 1925 to 1930 was only 22 per cent. These players were also small at the aggregate level: they made up only 7-8 per cent of the sector's total assets.

Figure 1.1 The structure and growth of the Austrian financial system by total assets



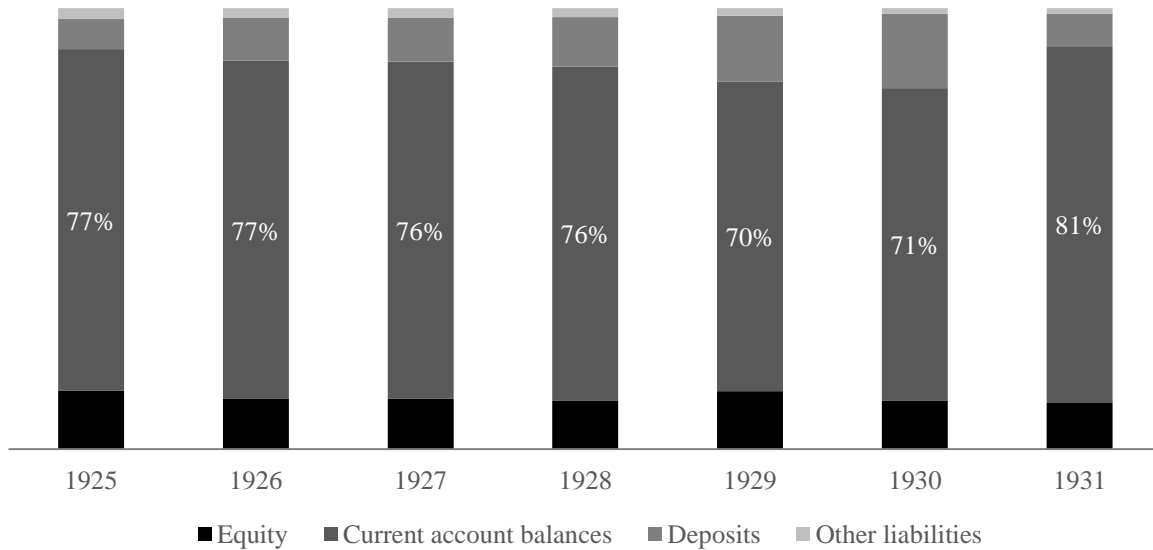
Source: the author's calculations based on *Financial Compass*, 1925-32.

Of the two large players, universal banks and Sparkassen, the latter grew more dynamically during the period. Sparkassen increased their total assets by over 160 per cent from 1925 to 1930, whereas the same figure for the universal banks was only 49 per cent. As a result, Sparkassen were continuously increasing their share within the sector as well, from 25 per cent in 1925 to 37 per cent in 1930. While in the years preceding the crisis universal banks were still the dominant players of the sector, this changed from 1932. In this year, universal banks and Sparkassen contributed 33 and 46 per cent to the total assets of the whole sector, respectively. This was a significant deterioration in universal banks' position, whose total assets in 1925 made up 60 per cent of those of the whole sector. Nonetheless, it is also notable that while the number of universal banks declined from eight to five during the period, the number of Sparkassen increased from 216 to

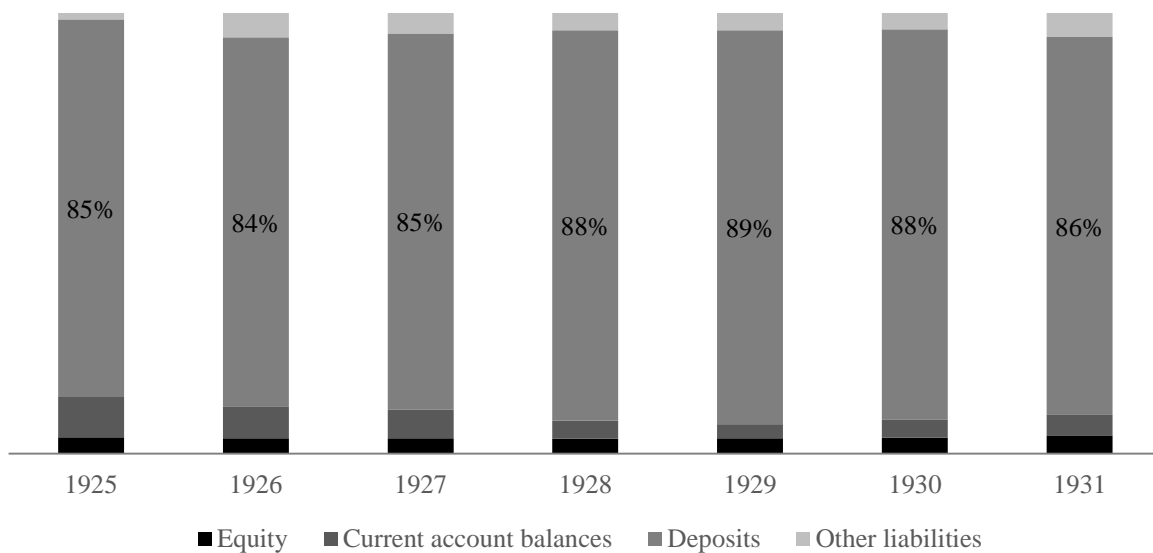
approximately 270 (Table 1.1). Therefore, despite their dynamic expansion over the years at the aggregate level, individual Sparkassen remained small vis-a-vis the enormous universal banks.

Figure 1.2 The equity and liability side of universal banks' and Sparkassen's aggregate balance sheet

Universal banks



Sparkassen



Source: the author's calculations based on *Financial Compass*, 1925-32.

Universal banks and Sparkassen differed in other respects as well. Figure 1.2 compares the equity and liability side of the aggregate balance sheet of these two players. The diagrams illustrate that universal banks and Sparkassen raised their financing from different sources. Sparkassen relied almost exclusively on depositors. Universal banks, on the other hand, raised only a minor part, 4-12 per cent of their financing from depositors and relied instead on current account balances. Depositors were predominantly private individuals who placed their savings at the bank and were not transacting with those monies. They were simply collecting their savings at the bank. Current account balances, on the other hand, were predominantly the bank accounts of businesses, were deposited via money transfers, not cash, and were heavily transacted.⁶⁷ Figure 1.2 thus confirms that Sparkassen were retail banks, whereas universal banks were essentially commercial banks.

FOREIGN CREDITORS

The literature argues that foreign creditors played a critical role in the 1931 crisis.⁶⁸ Therefore, the importance of foreign creditors in the financing of the banking system will now be reviewed.

The first diagram of Figure 1.3 illustrates the share of foreign creditors within the aggregate balance sheet of the banking system. At the height of the financial system's foreign exposure in 1927, financing provided by foreign creditors amounted to AS 836 million and its share in Austrian banks' total financing was 16 per cent. This figure declined to nine per cent in 1929 and remained at that level in 1930. This suggests that the predominant portion of the banking system's financing, 82 per cent in 1930, originated from domestic sources.

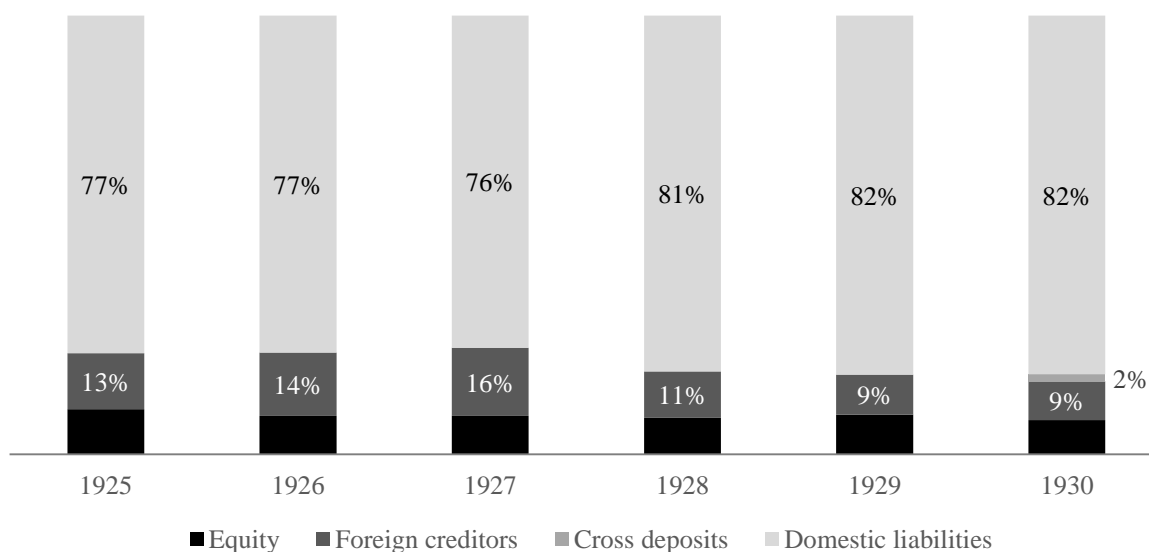
Unfortunately, the data source does not disclose which type of financial institutions and to what extent was exposed to foreign creditors. However, it can be safely assumed that the predominant portion, if not all, of foreign creditors can be assigned to the universal banks. Since individual mortgage banks and other banks were small and focused on local lending, they were probably not recipients of foreign credits. Further, as Figure 1.2 has shown, Sparkassen's financing was built mainly of deposits, which were the cash savings of private individuals, and were, therefore, in all likelihood, domestic in origin. The remaining 4-5 per cent of other liabilities on Sparkassen's balance sheet could theoretically have been foreign creditors. However, since

⁶⁷ Whale, *Joint-stock banking*.

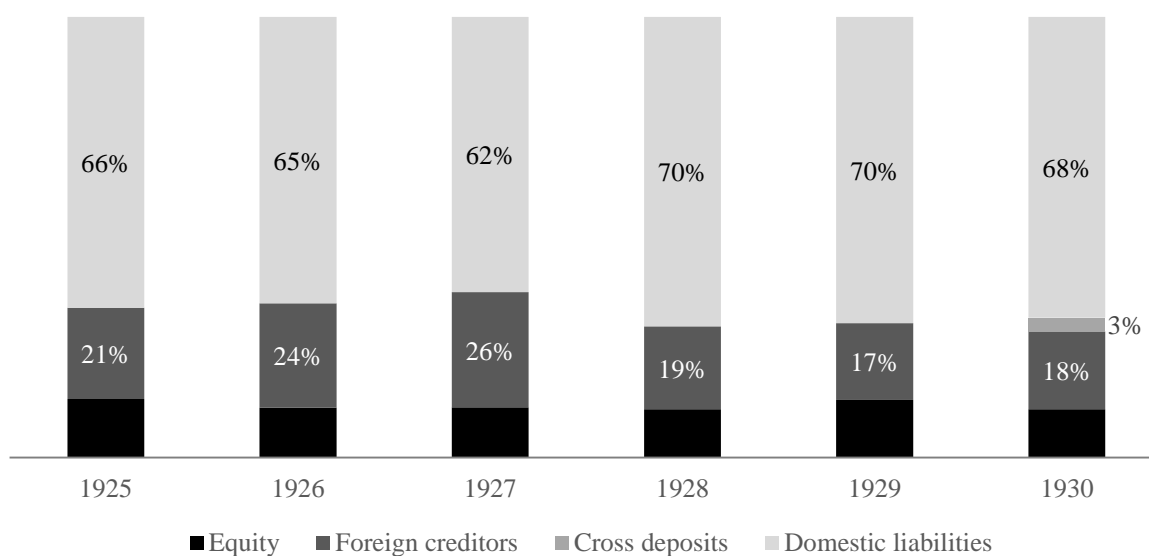
⁶⁸ Eichengreen, *Golden fetters*, pp. 262-9; Fior, 'The financial instability', pp. 132-5; Kindleberger, *The world in depression*, pp. 145-7; Schubert, *The Credit-Anstalt*, pp. 33-9, 44-6.

Figure 1.3 Foreign and domestic liabilities

Total banking system



Universal banks



Note: Data on foreign creditors unavailable for 1931.

Source: the author's calculations based on *Financial Compass*; Foreign creditors for 1925-8 based on: *Financial Compass*, 1931, p. 146-7; Foreign creditors for 1929 based on: *Financial Compass*, 1931, p. 274, footnote 7 for the CA's figure; Weber, 'Vor dem großen Krach', p. 341. for the rest. Foreign creditors for 1930 based on: Weber, 'Vor dem großen Krach', p. 341. Foreign creditor data checked against the CA's reports on its own foreign creditor exposure based on: *Financial Compass*, 1928, p. 375, footnote 4; *Financial Compass*, 1929, p. 374, footnote 5; *Financial Compass*, 1930, p. 354, footnote 5; *Financial Compass*, 1931, p. 274, footnote 7; Cross deposits based on: BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5.

Sparkassen were local financiers, for the sake of this investigation it is assumed that these liabilities were also domestic in origin. That is, subsequent analyses allocate all foreign creditors to the universal banks.

Following this assumption, the second diagram of Figure 1.3 shows the share of foreign creditors in the universal banks' aggregate balance sheet. At the highest exposure in 1927, over a quarter of the universal banks' financing came from foreign sources. In subsequent years, this ratio declined to approximately 17-8 per cent. That is, domestic liabilities constituted the dominant portion of universal banks' external financing sources, approximately 70 per cent of the total from 1928.

As the literature has pointed out, exposure to foreign creditors raises the risk of currency mismatch. If the universal banks were lending more in foreign currency than the volume of foreign currency financing sources made available to them, they incurred exchange rate risk. Table 1.2 examines this risk. It reports the volume of foreign creditors and the volume of foreign lending, and from these two, it calculates the foreign currency mismatch. In 1926 and 1927, institutions had more foreign currency liquidity than what they eventually extended as loans. From 1928, however, banks were granting more foreign currency loans than the volume of financing received from foreign creditors. In 1930, the mismatch amounted to AS 147 million.

Should this be considered a high figure? Table 1.2 calculates how much of the central bank's foreign reserves would have been necessary to finance the banking system's foreign currency mismatch. Table 1.2 also shows the gold cover⁶⁹ in the extreme scenario when the ANB had had to finance the entire currency mismatch from its own reserves. In 1930, the gap in foreign lending and borrowing amounted to 15.8 per cent of the ANB's reserves. Had the ANB had to fill in this gap from its reserves, the central bank's coverage ratio would have declined to 72.4 per cent in 1930. This figure is well above the legal minimum coverage ratio of 33 1/3 per cent.⁷⁰

Nonetheless, to establish a precise picture of the foreign currency exposure of the banking system and the ANB's ability to provide lender of last resort support, one more matter needs to be taken into consideration: cross-deposits. The cross-deposit scheme was designed by the ANB to

⁶⁹ The coverage ratio or the gold cover is the ratio of the central bank's gold and foreign currency reserves and the total banknotes in circulation.

⁷⁰ BoEA, file OV28/32, Statutes of the Austrian National Bank. Based on the statutes, the ANB's gold cover was to be 20 per cent in the first five years of its operation, 24 per cent in the next five years, 28 per cent in the following five years, and 33 1/3 per cent afterwards. That is, the 33 1/3 per cent is the absolute conservative scenario.

provide support to the CA after its merger with the BCA, without hurting the central bank's reserve backing. Through this mechanism, the ANB lent foreign currency credits to international banks, and the latter in turn lent the same amount to the CA at a one percentage point profit margin. Through this channel, the ANB indirectly provided foreign currency credits to the CA through the international banks.⁷¹ Since the ANB did not report the impact of these foreign currency credits on its books, presumably, neither did the CA.⁷²

Table 1.2 Foreign currency mismatch (million Austrian Schilling)

	1926	1927	1928	1929	1930
Foreign creditors	685	836	649	566	611
Foreign borrowers	535	662	728	741	758
Foreign currency mismatch	150	174	-79	-174	-147
Foreign currency mismatch/ANB reserves	22.1%	23.6%	-9.9%	-23.5%	-15.8%
ANB gold cover - adjusted for mismatch					72.4%
Cross-deposits					107
Mismatch with cross-deposits/ANB reserves without cross-deposits ^{a)}					-30.8%
ANB gold cover - adjusted for mismatch and cross-deposits					62.6%

Note: The Financial Compass identifies these creditors and borrowers as financial institutions' 'ausländische Kreditoren' and 'ausländische Debitoren'. This stands for foreign creditors and borrowers but says nothing about the currency in which they were lending and borrowing. The analyses rest on the assumption that the transactions with these parties were carried out in foreign currency. a) Cross-deposits increase the foreign currency mismatch and also reduce the ANB's reserves. Their overall effect on the gold cover is hence double of their absolute value. Source: *Financial Compass*, 1928, p. 375; *Financial Compass*, 1929, p. 374; *Financial Compass*, 1930, p. 354; *Financial Compass*, 1931, p. 146-7, 274; *ANB Mitteilungen*, 1926-33; BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5; Weber, *Vor dem großen Krach*, pp. 325-6, 342, 479.

That is, Figure 1.3 and the calculations in Table 1.2 must be adjusted with the volume of cross-deposits. The total volume of cross-deposits is estimated around 15 million US dollars, which was AS 107 million.⁷³ Figure 1.3 indicates that cross-deposits made up three per cent of the total assets of the universal banks in 1930. Table 1.2 calculates the foreign currency exposure arising from cross-deposits. The worst case scenario is when the full value of cross-deposits increases the foreign currency mismatch and, at the same time and to the same extent, it reduces the ANB's

⁷¹ BoEA, file OV28/75, Cross deposits.

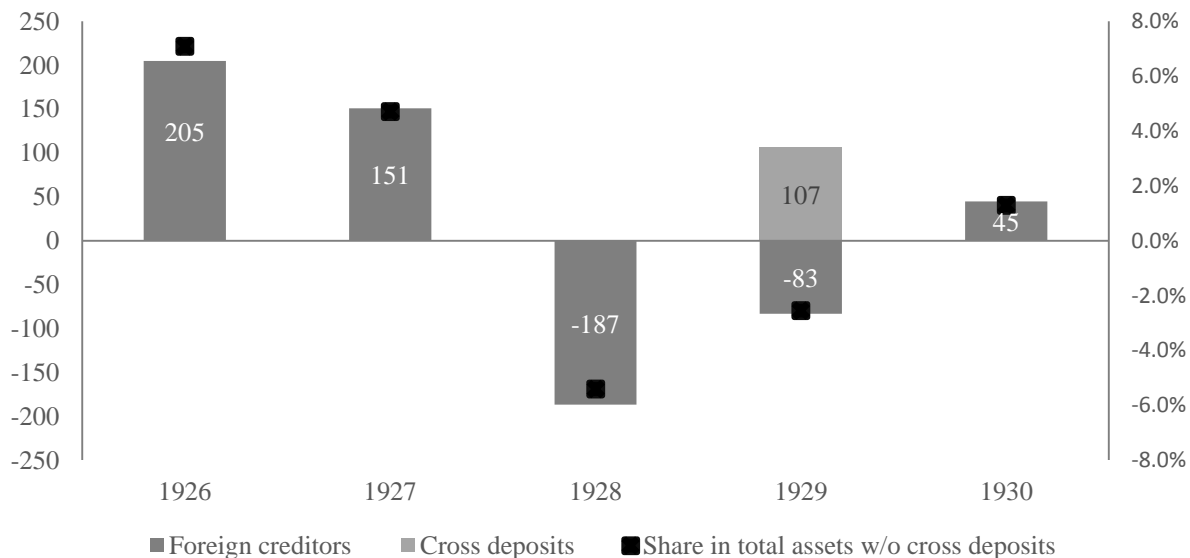
⁷² Aguado, 'The Creditanstalt crisis', pp. 202-4

⁷³ BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5; Weber, *Vor dem großen Krach*, p. 479.

reserves. If the ANB had had to support the universal banks in such a scenario, it would have lost 30.8 per cent of its reserves, and its coverage ratio would have declined to 62.6 per cent, still well above the legal minimum.

To further investigate the significance of foreign creditors, Figure 1.4 turns to the analysis of the annual change in the foreign creditors of the banking system. Universal banks - as long as the assumption holds that all foreign creditors can be allocated to them - received a capital inflow from abroad amounting to 7.1 per cent and 4.7 per cent of their total assets in 1926 and 1927, respectively. However, from 1928, the volume of foreign creditors declined sharply. The biggest drop of AS 187 million, or 5.4 per cent of the universal banks' total assets, occurred in 1928. The year 1929 continued with a fall of AS 83 million, 2.6 per cent of assets. The year before the crisis again saw an increase in foreign creditors of AS 45 million, 1.3 per cent of total assets.

Figure 1.4 The annual change in the foreign creditors of the banking system



Source: *Financial Compass*, 1928, p. 375; *Financial Compass*, 1929, p. 374; *Financial Compass*, 1930, p. 354; *Financial Compass*, 1931, p. 146-7, 274; *ANB Mitteilungen*, 1926-33; BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5; Weber, *Vor dem großen Krach*, pp. 325-6, 342, 479.

These figures should again be adjusted with the impact of cross-deposits. Cross-deposits amounted to AS 107 million at the end of 1929. Afterwards they gradually declined by 1931 by approximately one-third. Since the exact timing of their departure is uncertain, it is assumed here

that their volume did not change in 1930.⁷⁴ If Figure 1.4 is adjusted accordingly, then the net change in foreign creditors is an AS 24 million increase in 1929. That is, cross-deposits turned the 1929 foreign currency outflow into a net inflow in 1929, which was followed by another AS 45 million inflow in 1930.

What do these analyses reveal about the foreign currency exposure of the banking system, and in particular, that of the universal banks, which, arguably, suffered from it? The figures lead to two findings. First, the ANB's reserve backing was very strong. The central bank's coverage ratio was around 90 per cent in the years preceding the crisis.⁷⁵ The analyses demonstrate that in the absolute extreme scenario of all foreign creditors departing from the banking system, the ANB's gold cover would have still been at the legal minimum. While in the middle of a crisis even such a strong reserve backing may prove insufficient, prior to the crisis it should give no concern to investors. Further, even if the banks did not offer an honest representation of their foreign currency mismatch and the figures were in fact higher than reported, these figures would have had to be three times higher to reduce the ANB's coverage to below the legal minimum. This detail can explain why the Austrian crisis was a banking crisis at first, and became a currency crisis only afterwards. It can also account for the fact that Austria was the last among the three Central European countries to introduce capital controls in 1931. While Hungary and Germany stepped on this road in mid-July, Austria waited until 8 October.⁷⁶

Second, the figures also show that the fluctuations in foreign creditors were not significant when viewed as a ratio of the universal banks' total assets, especially in the two years preceding the crisis. Unfortunately, these annual figures may hide extreme volatility occurring during the year. Nonetheless, when these low annual fluctuations are considered together with the high reserve backing of the ANB, the two together suggest that had the universal banks been strong and healthy, they would have been able to survive the volatility of foreign creditors. The fact that, despite this background, four universal banks reported distress during this period, suggests that these banks were weak. The next sections thus explore whether this was the case.

⁷⁴ RAL, III/488 (a-c) Austria; BoEA, file OV28/75, Cross deposits; Assumption based on the author's discussions with Dr. Nathan Marcus.

⁷⁵ The author's calculations based on *ANB Mitteilungen*, 1926-33.

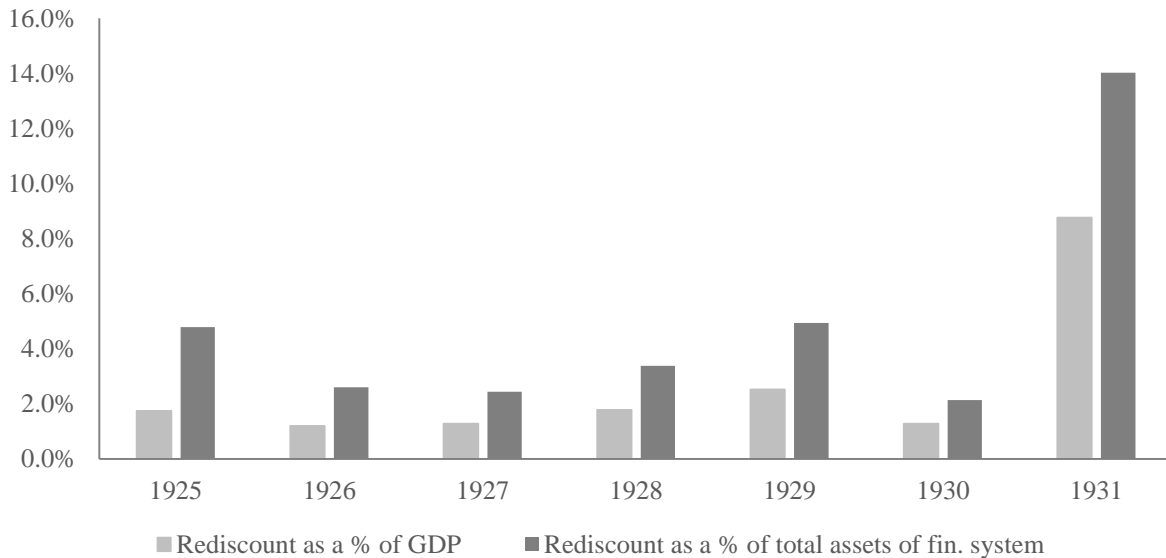
⁷⁶ Ellis, 'Exchange control', pp. 30-7, 88-92.

DOMESTIC CREDITORS

Figure 1.3 has demonstrated the primary importance of universal banks' domestic liabilities. These contributed approximately 70 per cent to universal banks' capital sources from 1928. If depositors are removed from this aggregate, then the remaining 55-60 per cent remaining are the universal banks' domestic current account balances. These will henceforth be referred to as the universal banks' domestic creditors.

Who were these domestic creditors? There is only a limited number of players who could qualify for this category: the state (including any public authority), the ANB, other financial institutions, or the corporate sector, that is, the universal banks' Konzerns. The state can be immediately excluded since it could not act as a direct lender to financial institutions.⁷⁷ This leaves only three relevant options: the ANB, other financial institutions, and the Konzern.

Figure 1.5 Rediscount from the central bank to the banking system



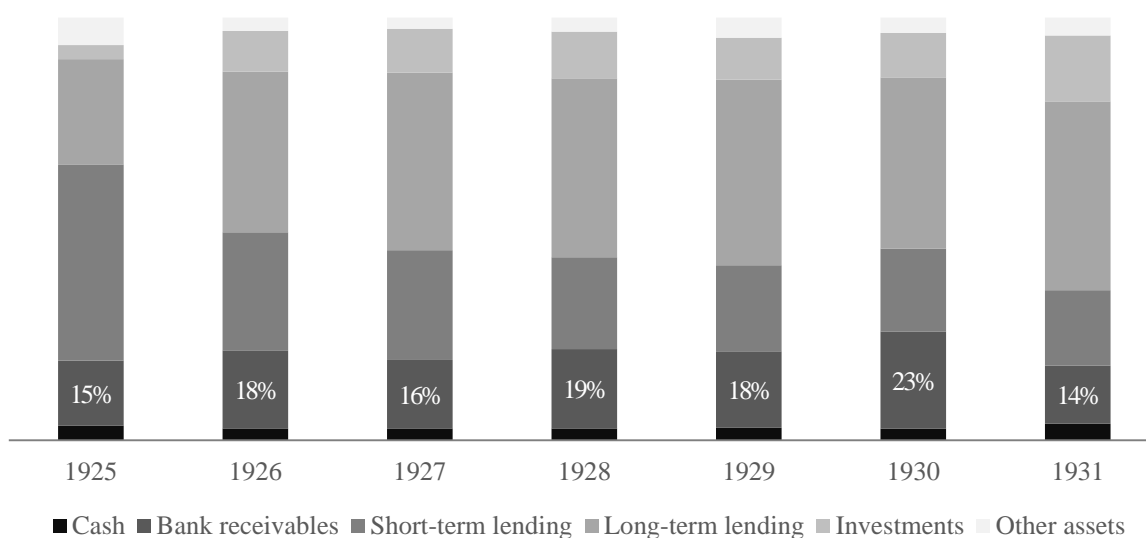
Source: for the rediscount: *ANB Mitteilungen*, 1926-33; for the GDP: Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen', p. 5; for the total assets of the financial system: the author's calculations based on *Financial Compass*, 1926-35.

The ANB supported the financial sector by providing rediscount. Figure 1.5 shows the annual rediscount of the ANB. The data illustrate that in periods of tranquillity, the ANB's

⁷⁷ BoEA, file OV28/32, Comments by Niemeyer to Reisch letter of 12/21/1926, 3 Jan. 1927.

rediscount was around 2-3 per cent of the financial sector's total assets which translated to less than two per cent of the GDP. By way of comparison, the same figures for the Hungarian National Bank were around 6-10 per cent of the banking system's total assets and 5-6 per cent of the national income.⁷⁸ This suggests that the ANB did not excessively support the banking system and stepped up its intervention only in times of crisis. The ANB's rediscount increased in 1929 when the BCA collapsed, and in 1931 when the failure of the CA occurred and the whole of the financial system sank into distress.

Figure 1.6 The asset side of Sparkassen's aggregate balance sheet



Source: the author's calculations based on *Financial Compass*, 1925-32.

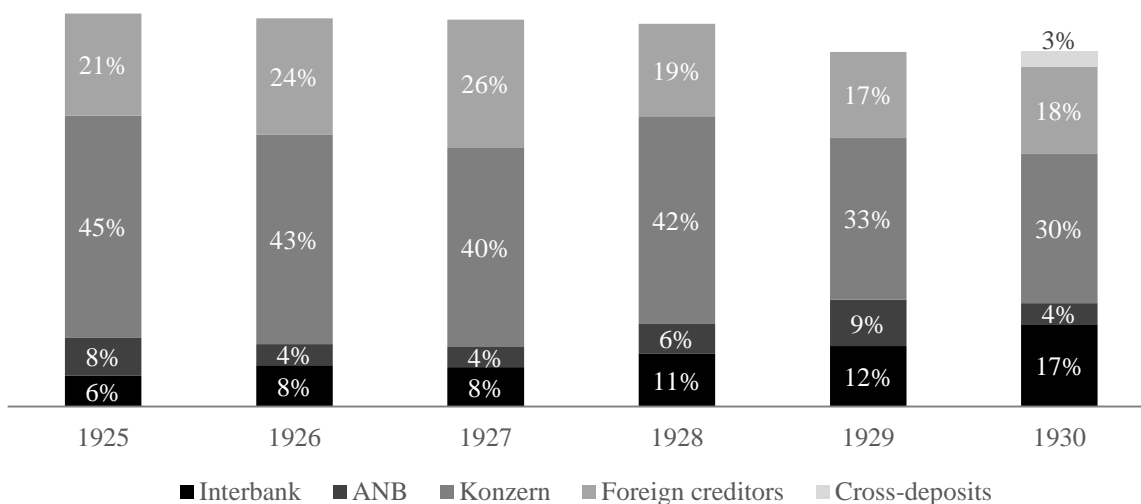
Another domestic creditor to the universal banks may have been other financial institutions. Among these only the Sparkassen were sufficiently sizeable players to be able to act as a significant creditor to the even bigger universal banks. Figure 1.6 examines the asset side of Sparkassen's balance sheet to pinpoint asset classes which were potentially lent to the universal banks. The analysis identifies an item called 'bank receivables' (Bankguthaben) which made up 14-23 per cent of Sparkassen's assets.⁷⁹ These receivables could be Sparkassen's lending to the universal banks

⁷⁸ The author's own calculations based on Eckstein, *National income*, Table 1, p. 14; HNA, file Z12, bonds 60, 128-9; *Hungarian Compass*, 1925/6-1934/5.

⁷⁹ Bank receivables are almost entirely missing from among the assets of the universal banks. The exceptions are the Zentral-Europäische Länderbank and the Mercurbank which held some bank receivables. Since these were foreign-owned banks, it can be reasonably assumed that these were receivables from their affiliates (*Financial Compass*, 1926-35).

or other players of the financial system. This analysis makes the conservative assumption that all of Sparkassen's bank receivables went to the universal banks.⁸⁰

Figure 1.7 Universal banks' foreign and domestic creditors by creditor type



Notes: Figures are calculated as a percentage of universal banks' total assets. Deposits and equity are not shown. Data for 1931 cannot be disaggregated and hence not shown.

Source: the author's calculations based on *Financial Compass*, 1925-32; *Financial Compass*, 1931, p. 375; *Financial Compass*, 1929, p. 374; *Financial Compass*, 1930, p. 354; *Financial Compass*, 1931, p. 146-7, 274; *ANB Mitteilungen*, 1926-33; BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5; Weber, 'Vor dem großen Krach', pp. 325-6, 342, 479.

The diagram of Figure 1.7 decomposes universal banks' creditors into the main categories. Central bank rediscount accounted for four per cent of the universal banks' total financing resources in periods of tranquillity and the figure seems to increase only in years of crisis.⁸¹ Interbank lending generated some 6-17 per cent, while foreign creditors and cross-deposits were in the magnitude discussed earlier. The remaining portion, making up the largest part, 30-45 per cent of universal banks' total assets, came from the corporate sector. Given that the universal banks owned a large portion of Austrian industry, this could not be any other source than their own

⁸⁰ What makes this assumption conservative is that it reduces the significance of the Konzern as a source of funding. This is however, not an unrealistic assumption since there is evidence that various Sparkassen were closely linked with various universal banks, for example the CA was connected to the Erste österreichische Spar-Casse (*Financial Compass*, 1927, p. 517).

⁸¹ Information is not available on the volume of individual banks' reliance on the central bank's rediscount. This analysis, therefore, assumes that all of the central bank's rediscount went to the universal banks. What makes this assumption conservative is that it reduces the significance of the Konzern as a source of funding.

industrial base. That is, universal banks' most significant financier was these financial institutions' very own Konzern.

This phenomenon also explains an apparent oddity about the universal banks. They appear thinly capitalized throughout the period under observation with their equity at only 11-13 per cent of their total assets, which raises doubts about their ability to absorb the unreported losses that the literature claims they had to endure in the 1920s. However, if one views Konzern member accounts as quasi-equity, the universal banks were in fact very well-capitalized and had enough funds to sustain several years of losses. To translate this mystery of solvency into an even bigger mystery of liquidity: if, as universally believed, these banks failed to collect interest on much of the loans they extended, how were they able to pay interest on their liabilities? In light of the finding that much of their funding came from their Konzern, the most likely interpretation is that even if universal banks had to book interest expenses on this Konzern funding, they did not actually have to make the payments on those payables. That is, the Konzern was standing on both sides of the universal banks' balance sheets: the Konzern was receiving the loans on which interest was booked but not received and the Konzern was providing the dominant portion of the financing for the bank on which interest was booked but not paid. That is, the bank acted as a channel for its Konzern and Konzern financing acted as a source of cheap, or even free funding for the universal banks.

KONZERN AND BANK SOLVENCY

Previous paragraphs have analysed the financing resources of the universal banks, that is, the equity and liability side of their balance sheet, and have discussed the relative importance of their foreign and domestic creditors. The following sections will now zoom in on the asset side of these banks' balance sheet.

There were eight universal banks in 1925 but by the end of the decade, only five remained (Table 1.1). Prior to 1931, three universal banks experienced distress. In 1927, the UB and the VB, and in 1930, the BCA disappeared.⁸² The first two merged into the third, while three years later the BCA was absorbed by the largest universal bank, the CA. Finally, in 1931 the CA also collapsed. What happened to these banks?

⁸² The UB and the VB announced their merger with the BCA in 1926 and the effective date of these mergers was 25 March 1927. The BCA announced its merger with the CA in 1929 and the effective date of this merger was 1 January 1930.

The analysis of the universal banks' assets and insolvency has been so far limited by the lack of data. Austrian universal banks misrepresented the assets on their balance sheets.⁸³ They perpetuated the non-performing loans to their Konzerns and represented defaulted loans as healthy ones on their balance sheets. Further, the assets of the three universal banks that merged during the 1920s, the VB, the UB, and the BCA, continued to be falsified after their absorption into another bank's balance sheet. At none of these mergers were bad assets, that is, the delinquent loans of the failed banks' Konzerns, fully written off. The predominant portion of bad loans were accepted at face value, as if they had been healthy, performing assets.⁸⁴ There is thus no information on the volume of these banks' non-performing loans. As explained above, it is also very likely that universal banks continued to book interest on their non-performing loans even when the interest was not received. They thereby falsified their net interest margin and thus made their profit and loss accounts unreliable regarding interest income and expenses. Thus the net interest margin based approach applied in Chapter 2 for the estimation of non-performing loans cannot be adopted here. Universal banks' financial statements are, therefore, not useful for the analysis of their insolvency.

Since the banks' financial statements prevent a reliable assessment of their solvency, the investigation must reach out to the ultimate source: the financial accounts of the Konzerns themselves. The idea is to use the information on the performance of Konzern corporations as a basis, and from that make an inference on the quality of the universal banks' assets. Since one can safely assume that the predominant portion of the universal banks' assets were lent to or were invested into their Konzerns, the health of their Konzerns should be a reflection on the health of these banks' assets. Indeed, the Konzern debt of the sample made up approximately 68 per cent per cent of the CA's total lending in 1930.⁸⁵

I have hence built another micro-level database by collecting the balance sheets and the profit and loss statements for the period of 1925-30 of the Konzern corporations of the four universal banks that failed. The source was the *Compass Kommerzielle Jahrbuch (Commercial Compass)*. The four Konzerns are that of the VB, UB, BCA, and the CA. Konzern members were

⁸³ Schubert, *The Credit-Anstalt*, p. 25.

⁸⁴ Table 3.2 of Chapter 3 calculates the meagre portion of write-offs within total assets at each merger.

⁸⁵ The author's calculation based on *Commercial Compass*, 1925-32.

Table 1.3 The number of financial accounts in the Konzern database

	1925			1926			1927			1928			1929			1930		
	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total
No. of years reported	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total	2-6	1	Total
Coal, steel, machine	48	2	50	43	0	43	44	0	44	43	0	43	48	0	48	39	0	39
Construction	7	0	7	8	0	8	8	0	8	7	0	7	7	0	7	6	1	7
Chemical	7	1	8	7	0	7	7	0	7	6	0	6	7	0	7	7	0	7
Diverse	21	0	21	19	1	20	24	0	24	23	0	23	23	0	23	22	0	22
Electricity, water, gas	15	1	16	14	0	14	15	0	15	13	0	13	14	0	14	14	0	14
Beverage	9	0	9	10	0	10	9	0	9	10	0	10	10	0	10	9	0	9
Timber	8	0	8	8	0	8	9	1	10	8	0	8	8	0	8	7	0	7
Shoe and leather	7	0	7	7	0	7	7	0	7	6	0	6	5	0	5	5	0	5
Oil	3	1	4	2	0	2	2	0	2	3	0	3	2	0	2	1	0	1
Paper	14	0	14	14	0	14	14	0	14	13	0	13	13	0	13	12	0	12
Textile	17	3	20	20	0	20	20	0	20	17	0	17	17	1	18	13	0	13
Transport	15	0	15	14	0	14	13	0	13	13	0	13	17	1	18	16	0	16
Sugar	1	0	1	1	0	1	1	0	1	1	0	1	1	1	2	1	0	1
Total	172	8	180	167	1	168	173	1	174	163	0	163	172	3	175	152	1	153

Table 1.4 Theoretical calculations for insolvency thresholds

	Healthy	Tier-1						Tier-2	
Debt	100	100	100	100	100	100	100	100	100
Debt-to-profit ratio	5.0x	6.0x	7.0x	8.0x	9.0x	10.0x	11.0x	12.0x	13.0x
Profit before financial expenses	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7
Interest	8%	8%	8%	8%	8%	8%	8%	8%	8%
Average term (years)	10	10	10	10	10	10	10	10	10
Debt, beginning of period	100	100	100	100	100	100	100	100	100
Interest payment	8	8	8	8	8	8	8	8	8
Principal repayment	10	10	10	10	10	10	10	10	10
Debt, end of period	90	90	90	90	90	90	90	90	90
Profit before financial expenses	20.0	16.7	14.3	12.5	11.1	10.0	9.1	8.3	7.7
Interest expense	8	8	8	8	8	8	8	8	8
Cash remaining for principal payment and distribution	12.0	8.7	6.3	4.5	3.1	2.0	1.1	0.3	-0.3
Principal payment	10	10	10	10	10	10	10	10	10
Cash remaining for distribution	2.0	-1.3	-3.7	-5.5	-6.9	-8.0	-8.9	-9.7	-10.3

identified based on the banks' reporting in the *Financial Compass*.⁸⁶ Table 1.3 provides an overview of this second micro-level database.

A total of approximately 400 Konzern companies have been identified based on the four universal banks' reporting. However, only approximately 160-180 companies actually reported a financial statement in any of the years between 1925 and 1930 in the *Commercial Compass*, on an annual basis. Those that did not report were presumably experiencing financial difficulties. Hiding financial distress through non-reporting was a common practice among banks as well as companies, and the authorities' enforcement of regular reporting was ineffective. I also applied a restriction to the sample and included only those companies which supplied at least two financial statements for the six years under review. This excluded 14 companies. The purpose of this restriction was to gain some sense of dynamics for each company. Based on this, there are approximately 160-180 Konzern enterprises in the database for each year and after all exclusions these were most likely the best-performing Konzern members of the four universal banks.

Levels of insolvency

The abundant theoretical literature on banking crises provides guidance on the forthcoming analysis.⁸⁷ Most of this literature analyses the liability side of banks in crisis, but this chapter focuses on the deterioration of the asset side. In this regard, the analyses here are not concerned with 'random withdrawals' or the 'asymmetric information' between the bank and its depositors.⁸⁸ Rather, the analyses investigate when the performance of underlying assets may make a bank insolvent and illiquid. The approach of this chapter is hence closest to the theoretical model of Diamond and Rajan.⁸⁹

The chapter distinguishes between three levels of bank insolvency based on the performance of the bank's assets:

- (i) when bank borrowers stop servicing the principal on the loan from the bank (tier-1);
- (ii) when borrowers stop servicing part of the interest of the loan as well (tier-2);

⁸⁶ As previously noted, the definition of the Konzern is vague and this chapter adopts the assumption that Konzern members were those corporations for which the universal bank made such a claim. The companies of the four Konzerns were identified with the help of the following sources. For the CA: *Financial Compass*, 1927, pp. 371-5 and 1931, pp. 278-81; For the BCA: *Financial Compass*, 1927, pp. 261, 263-8 and, 1931, pp. 270-1; For the UB: *Financial Compass*, 1927, pp. 421-2, 424-5; For the VB: *Financial Compass*, 1927, pp. 429-30.

⁸⁷ E.g. Calomiris and Gorton, 'The origins of banking panics'; Diamond and Dybvig, 'Bank runs'.

⁸⁸ Calomiris and Gorton, 'The origins of banking panics', p. 111.

⁸⁹ Diamond and Rajan, 'Liquidity shortages'.

- (iii) when borrowers stop generating sufficient interest and cash income to cover the bank's most basic expenditures (tier-3).

The bank is insolvent in all three cases but can remain liquid under tier-1 and tier-2 by restructuring, even effectively evergreening the existing loan, or by offering a new loan to the defaulter. A bank failure, however, becomes a tangible possibility under tier-2 and a virtually inevitable event under tier-3. This three-tier insolvency will be examined for the Austrian universal banks.

Table 1.4 offers a simple calculation for the theoretical thresholds for the three-tier insolvency analysis. The table analyses various cases which only differ in the borrower's level of indebtedness, as measured by the debt-to-profit ratio. The debt-to-profit ratio indicates how many years' earnings are necessary for a company to repay its liabilities in full. If the ratio is high, the company has too much debt and/or insufficient profits to service the debt. Since the model assumes a constant debt level of 100, the various scenarios only differ in the underlying company's profit generating potential.

Assuming an eight per cent interest rate, a company enters tier-1 at 6x debt-to-profit.⁹⁰ At 5x debt-to-profit, the company has sufficient earnings to pay the interest and the principal due on the loan and, subsequently, it still has some money left to distribute to its own shareholders. At 6x debt-to-profit, however, the company's distributable earnings are negative, suggesting that it will stop servicing the principal of the loan. Between 6x and 12x debt-to-profit, the company is in tier-1, having less and less profits to service the principal but still having enough to make interest payments. At 13x debt-to-profit, however, the company enters tier-2 as it can no longer pay the interest due on the loan. That is, companies with a debt-to-profit ratio at or below 5x are healthy, those between 6-12x debt-to profit can still make interest but not principal payments, and from 13x they default on the principal as well as on the interest of the loan.⁹¹

What do these figures tell us about the solvency of the bank? From the perspective of the bank, a tier-1 corporate default is manageable, tier-2, however, threatens the existence of the bank itself. At tier-1 the bank is still earning the full interest of the loan and it is only the loan principal, that is, the bank's capital, which is immobilized by the company's non-payment. In this phase, the

⁹⁰ Based on the Statistische Nachrichten, the interest rate on short-term loans was around eight per cent in the period between 1926 and 1930. This is a conservative approach because long-term rates were probably higher.

⁹¹ The interest rate has been assumed based on the sources listed in Table 1.5. The limited principal payment (10-year loan) has been assumed because Konzern companies were very likely wholly or partially owned by the universal banks.

Table 1.5 Liquidity and solvency measures for the four Konzerns (million Austrian Schilling)

Panel 1 - The aggregate debt-to-profit ratio						
	1925	1926	1927	1928	1929	1930
Actual debt-to-profit - aggregate for four Konzerns	18.5x	16.5x	13.4x	13.0x	11.9x	15.1x
Panel 2 - Theoretically necessary cash income (4 banks)						
	1925	1926	1927	1928	1929	1930
Interest payment	61	61	58	60	68	60
Securities ^{a)}	1	1	1	1	1	1
Special loans ^{b)}	0	0	0	0	0	0
Other liabilities ^{b)}	2	2	1	1	1	0
Creditors - foreign ^{b)}	29	31	31	24	22	19
Sparkassen ^{c)}	11	13	11	16	18	22
ANB ^{d)}	11	6	5	8	12	5
Deposits - domestic ^{d)}	5	6	6	7	8	9
Deposits - foreign ^{e)}	2	2	2	2	5	4
Operational expenses ^{f)}	54	58	57	56	38	44
Dividends paid ^{f)}	11	10	16	17	7	0
Theoretically necessary cash income (4 banks)	126	129	131	133	113	104
Actual reported cash income of the 4 Konzerns	74	73	99	100	103	76
Panel 3 - Actual debt-to-profit ratios						
	1925	1926	1927	1928	1929	1930
CA	10.9x	8.3x	6.7x	7.4x	8.7x	8.2x
BCA	12.6x	10.8x	10.2x	9.3x	6.1x	9.0x
UB	-20.3x	-18.4x	-29.2x	-42.6x	-89.5x	-13.0x
VB	9.4x	9.5x	10.1x	11.1x	7.2x	4.6x
BCA combined			21.6x	17.8x	15.1x	25.5x

Note: a) Financial Compass, 1931, pp. 275-6; 1930, pp. 265-6, 1929-30 based on ANB benchmark rate; b) Same as Sparkassen rate; c) Statistische Nachrichten, 1925-32; d) ANB Mitteilungen, 1926-33; e) Same as Deposit - domestic rate; f) Financial Compass, 1926-35, actual data for each universal bank. Source: the author's calculations based on *Financial Compass*, 1926-35 and *Commercial Compass*, 1925-32.

bank is already insolvent but it can still sustain its own operations from the interest payment. At tier-2, however, the bank is earning less interest than contractually determined, its net interest spread is lower than planned, and thus it faces the threat that its declining income may gradually prove insufficient to cover its own operational expenses.

Aggregate Konzern performance

Panel 1 of Table 1.5 applies the three-tier method to the database of the Austrian Konzern corporations and shows the actual debt-to-profit ratios.⁹² The four Konzerns had their combined debt-to-profit ratios at or above the 12x critical threshold in all years under observation. This suggests that they needed their banks' active cooperation to avoid bankruptcy, as they had defaulted not only on principal payments, but also on interest payments. As these companies' loans in all likelihood comprised the overwhelming majority of the four universal banks' assets, their default must have made the banks insolvent.

When do banks go bankrupt? They can avoid it by remaining liquid even when they are insolvent. When the borrower no longer services the principal and the interest on the loan but it still generates positive cash which is deposited at the bank (tier-2), then this fresh money can be a source of liquidity for the bank. As Table 1.4 depicts, at 13x debt-to-profit, the company has a profit before financial expenses of 7.7. Even if this is insufficient for interest payment and the company does not pay the interest from this profit, the money still sits on the bank's balance sheet. Banks become both insolvent and illiquid when the new cash generated by their borrowers is lower than their cash expenses. This is when they enter tier-3 and their bankruptcy becomes inevitable.

What was the extent of the universal banks' illiquidity? Panel 2 of Table 1.5 assesses the conditions under which the four universal banks should have become illiquid. The calculation assumes that the banks were already tier-2 insolvent as they received no interest or principal payments on their Konzern loans. However, the banks could still remain liquid, as long as their Konzerns produced sufficient cash earnings which were deposited on the companies' checking account held at the bank. That is, the table calculates the minimum theoretical cash income that was necessary for the four banks to stay afloat without outside liquidity injection.

The calculation assumes that the cash income had to cover three types of expenses. First, as illustrated previously on Figure 1.7, 30-45 per cent of the universal banks' total assets was

⁹² Debt includes all of the long-term liabilities of the company. Profit is calculated as income plus amortization and depreciation to arrive at what can be most reasonably assumed to be cash profit, not accounting profit.

financed through the Konzern prior to 1931. It is assumed here that the banks paid no interest on these current account balances. The remaining 42-59 per cent (excluding equity) of their assets was, nonetheless, financed through sources on which the banks had to pay interest because, presumably, the relationship with those financing parties was at arm's length.⁹³ These interest expenses were one item for which the banks needed liquidity. Diamond and Rajan's theoretical model only takes into consideration this expense category but disregards the following two, which are equally important in the assessment of banks' liquidity. One of these is banks' own operational expenses such as salaries, rent, taxes, etc.⁹⁴ The other is dividends: each of the four universal banks paid dividends during the period which was also a cash outflow that had to be financed.⁹⁵

Panel 2 of Table 1.5 shows the actual figures for these three expense items. Taking all these expenses into consideration the four banks required approximately AS 130 million between 1925 and 1928 and some AS 110 million in 1929 and 1930 to remain liquid and survive. This is how much in cash profit the four Konzerns had to be able to generate at a minimum to keep the four banks afloat, assuming there was no Konzern interest payment.

Strikingly, the actual cash profit produced by the Konzerns was much lower than this. As Panel 2 of Table 1.5 shows, the actual reported cash income of the four Konzerns was in the range of AS 70-100 million during the period, and in each year it was lower than the theoretically necessary cash income. The challenge with the interpretation of these figures is that each year there were a few companies which did not supply their financials for the given year. Therefore, hypothetically, earnings could have been significantly higher. But only hypothetically. A deeper dig into the data reveals that those companies that only intermittently provided their financial statements were those that were struggling to produce earnings at all. In 1927 for example, there were 17 companies, which did not report their balance sheet for the given year. Nine of these stopped reporting in earlier years and never continued, implying that they had gone bankrupt. Two of the 17 experienced a significant drop in their profit levels in earlier years, suggesting that financial distress was behind their non-reporting in 1927. The remaining six experienced some level of growth in their earnings in previous years and it is unclear why they chose to disclose no

⁹³ The calculation assumes that universal banks had to pay interest on the financing received from these parties but they had to make no principal payments. The volume of the various liability items has been collected from the *Financial Compass*, 1926-35. Interest rates are based on the sources indicated in the table.

⁹⁴ Actual data collected from the *Financial Compass*, 1926-35 for the four banks.

⁹⁵ Ibid.

information on their performance in 1927. Only two of these were able to continue the growth trend after 1927. If these two had reported their earnings in 1927 at the future increased level, that would have added less than AS 1 million to the actually reported income. This would have been an approximately 2.5 per cent adjustment to the actually reported earnings of the four Konzerns. This confirms that the whole sample of reporting companies is biased towards well-performing enterprises. Based on this sample, the four Konzerns produced less income than what would have been necessary for the four universal banks to avoid liquidity problems during the period.

Individual Konzern performance

The four universal banks were insolvent and illiquid at the aggregate level already in 1925. It is thus no surprise that they all failed. However, they did not each fail in 1925. The actual debt-to-profit figures for the individual Konzerns in Panel 3 of Table 1.5 indicate that the four Konzerns were not equally close to the bankruptcy threshold.⁹⁶

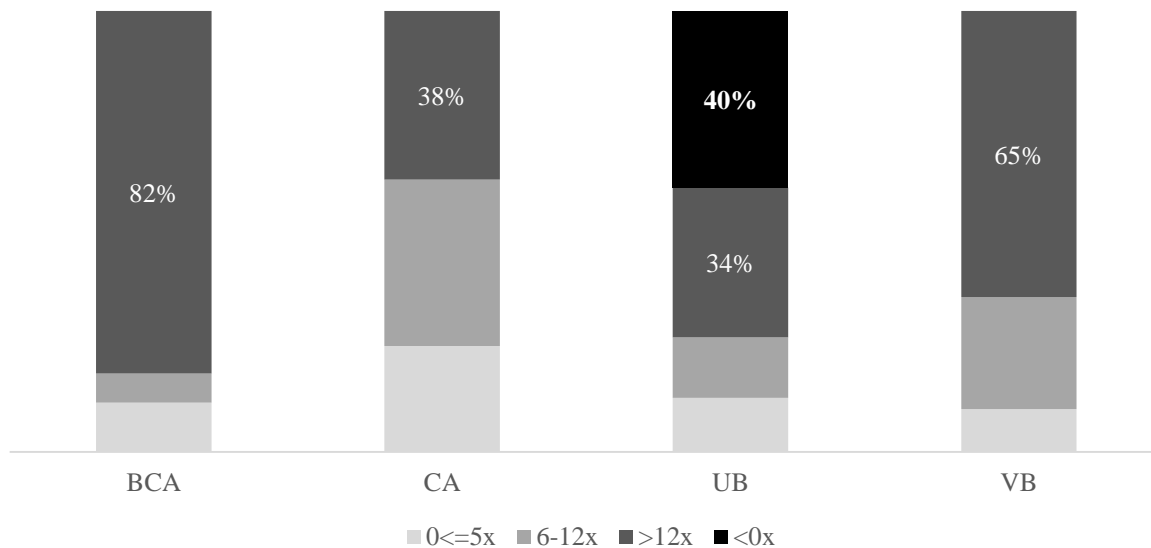
The figures reveal that the Konzerns were far from the healthy, sub-6x debt-to-profit category. The only exception was the VB's Konzern which in 1930 reached 4.6x. The worst-performing industrial network was that of the UB with ratios in the range of negative 13-90x. This bank had unprofitable and highly indebted companies. Compared to that, the VB's industrial network was a superstar, showing improvement between 1928 and 1930 and becoming healthy by the end. The BCA's Konzern followed a positive trend until 1929 but it could not reach the sub-6x range and by 1930 its situation worsened. The CA had a consistently performing industrial base whose debt-to-profit ratios were somewhere between those of the VB and the BCA.

Figure 1.8 takes an even closer look at individual Konzern performance and assesses the extent to which the four banks were exposed to good and bad companies. Company performance is defined by the debt-to-profit ratio: those Konzern members which had a 5x ratio or less are considered good performers; those between 6-12x are acceptable because they could still pay at least the interest, but those above 12x are the worst companies. Figure 1.8 then assigns the total debt (unweighted) of the Konzern companies into these performance categories and shows that the CA Konzern's debt was the 'cleanest'. Most of the companies that the CA owned and financed were in the good or acceptably performing category. 'Only' 38 per cent of the bank's portfolio was

⁹⁶ The analysis reviews Konzern companies separately. That is, even if the UB and the VB merged into the BCA in 1927 and the BCA merged into the CA in 1930, the Konzern companies have been kept separate in their original Konzerns for the analysis. Where a combined Konzern's performance is analysed, it is specifically indicated in the text.

comprised of bad enterprises. While this is not a low figure at all, it is dwarfed by the 74 per cent ‘achieved’ by the UB. The BCA’s and the VB’s Konzerns were somewhere in between the two but closer to the performance of the UB’s companies.

Figure 1.8 The exposure of the four banks to good and bad Konzern companies in 1927 based on companies' debt

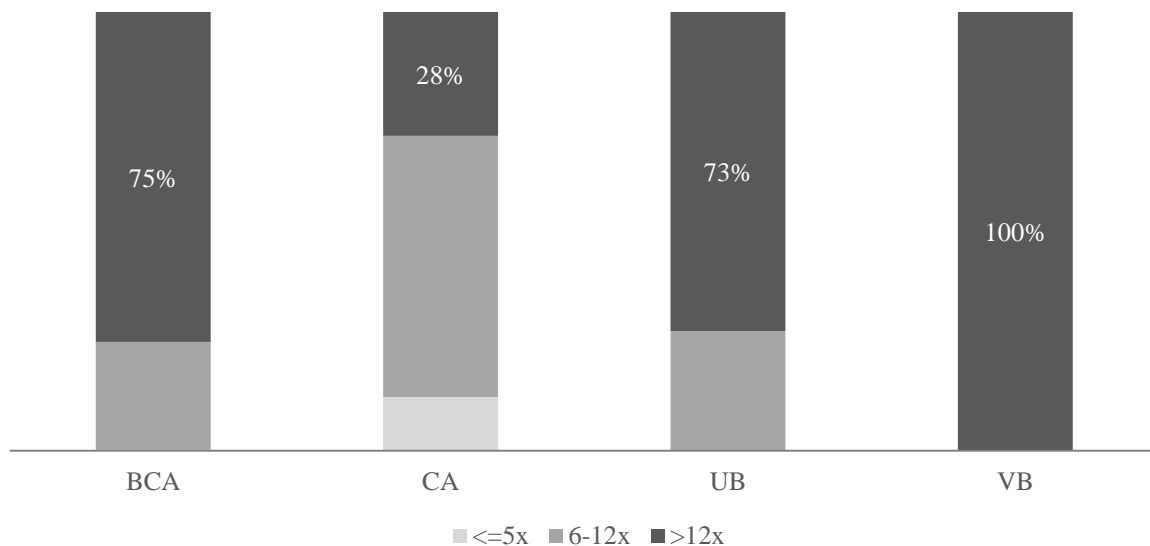


Source: the author's calculations based on *Commercial Compass*, 1925-32.

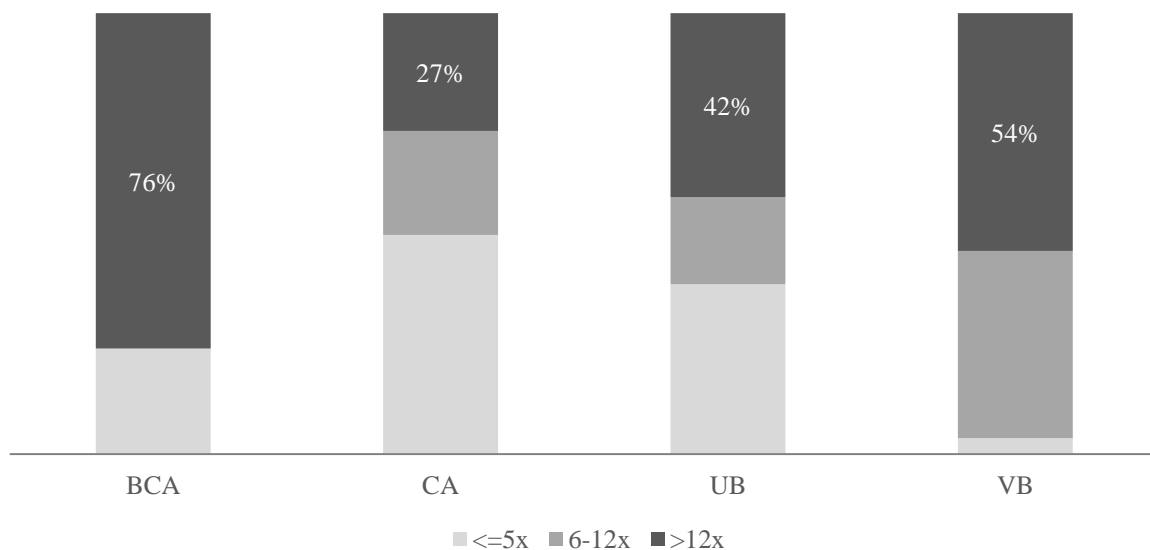
The UB’s was the worst performing among the four Konzerns. Of the 24 UB Konzern companies for which financial statements were available for this analysis, 11 were either in the sub-zero or the above-12-times debt-to-profit category in 1925. This figure fluctuated between seven and ten in the years preceding 1931. Companies in the sub-zero debt-to-profit category were lossmaking. Their debt made up approximately 40-54 per cent of the total debt of the UB Konzern, reaching the highest level of this range in 1930. Companies in the above 12-times debt-to-profit category were profitable but their profits were meagre vis-a-vis their total debt. Their debt made up 21-42 per cent of the total debt of the UB Konzern, with the 1930 figure standing at 32 per cent. That is, in 1930, when the 24 companies captured here as the UB’s Konzern were already under the control of the CA, 86 per cent of the UB Konzern’s total debt was in the sub-zero or the above 12-times debt-to-profit ratio category. This bad debt amounted to 20 per cent of the CA’s total lending.

Figure 1.9 Exposure of the four banks to good and bad industries based on companies' debt in 1927

Electricity, water, gas



Coal, steel, machine



Source: the author's calculations based on *Commercial Compass*, 1925-32.

Figure 1.9 reviews the universal banks' exposure to bad and good performers by industry. Electricity was a large industrial sector, with approximately 22 per cent of the aggregate Konzern debt coming from here, and it included several weakly performing companies. Whereas the aggregate debt-to-profit ratio for the whole of the four Konzerns was around 12-19x, for electricity companies it was in the range of 13-25x. That is, Konzern enterprises of the electricity sector were

more indebted and/or less profitable than the aggregate Konzern. The coal, steel and machine-manufacturing sector was the opposite. While this was a similarly large sector, the companies it included had a debt-to-profit ratio of around 5-8x.

Figure 1.9 shows the four universal banks' exposure to the companies of the weak electricity sector and the strong coal, steel, machine sector. The CA again emerges as the poster child of the Konzerns: it had the smallest exposure to weak enterprises in both sectors and in the coal, steel, and machine sector, the majority of its companies had a 5x or lower debt-to-profit ratio.

On the contrary, the other three banks had weakly performing Konzerns. The VB only had bad enterprises in the electricity sector, and even in the otherwise well-performing coal, steel, machine sector, the majority of its companies were badly performing. The UB and the BCA were similarly exposed to weak enterprises in the electricity sector. In the coal, steel, and machine sector the BCA had the weakest portfolio while the UB's Konzern was better in relative terms but still behind that of the CA.

CAUSES AND TRIGGERS

What was then the cause of the four universal banks' distress? The previous analyses provide an obvious explanation to the failure of the UB. This bank's Konzern was in the worst shape among the four with close to 50 per cent of its companies and 75 per cent of their total debt in the badly performing category. Since the aggregate debt level of this industrial network exceeded even the total assets of the bank, this structure was simply unsustainable.⁹⁷ It is not surprising, therefore, that it became distressed in 1926.

The debt-to-profit figures of the UB's Konzern can also account for the debacle of the BCA. In fact, the BCA signed its own death sentence when it decided to merge with the UB. The critical insight here is that the bad loans of the weak UB Konzern were not written off at the merger or afterwards, and hence they continued to burden the BCA after the two banks' merger.⁹⁸ Whereas the BCA Konzern in itself had a 6.1x debt-to-profit ratio in 1929 - very close to the healthy ratio - the combined BCA (BCA, UB, VB) Konzern's same ratio was 15.1x (and that was its best-performing year). The discrepancy between the independent and the combined BCA Konzern's

⁹⁷ The explanation to this is that the UB Konzern was indebted towards other parties as well, not only the UB.

⁹⁸ The author's own calculations based on the various banks' reports in the *Financial Compass*, 1926-35 and explained in Table 3.2 in Chapter 3.

performance can be fully ascribed to the UB because the VB, which was also merged into the BCA in 1927, had a relatively good Konzern. In fact, the VB's industrial enterprises improved on the overall performance of the combined BCA Konzern. Had there been no VB merger in 1927, the debt-to-profit ratio of the BCA-UB Konzern would have had an 18.5x debt-to-profit ratio in 1929, not the relatively better 15.1x. Further, if the BCA had acquired only the VB, the BCA-VB Konzern would have had a 6.4x debt-to-profit ratio in the same year, close to the healthy performance level. Viewed from this standpoint, the decision of the BCA's management on the pursuit of the merger with the UB seems foolhardy.⁹⁹

The figures raise the intriguing question. What was behind the VB's distress and why was it necessary to merge the VB into the BCA? Lacking sufficiently reliable information on this matter, I can only develop two hypotheses. As Panel 3 of Table 1.5 shows, the VB's industrial base had a debt-to-profit ratio of 9.5x in 1926, which worsened to 11.1x by 1928. Presumably, at the time of the merger, only the threat of the VB Konzern's weak and potentially deteriorating performance was perceived, and the post-1928 improving performance could not yet be foreseen. Based on this information, the merger of the VB and the BCA was necessary to save the seemingly failing VB. An alternative explanation may be that the VB, a healthy bank in relative terms, was granted to the BCA in exchange for agreeing to acquire the much weaker UB. The UB was ravaged not only by its bad assets but also by the French franc scandal.¹⁰⁰ The scandal involved a number of politicians, and the merger of the UB into the BCA was identified as a solution to hush up the matter.¹⁰¹ Based on this line of argument, the VB may have been the sugar-coat that helped the BCA swallow the merger with the UB.

The UB's weak Konzern not only explains the collapse of the BCA but also that of the CA. In 1929, when the BCA could no longer sustain the UB's Konzern, it failed and was merged into the CA. In that year, the CA's independent Konzern had a debt-to-profit ratio of 8.7x, which declined to 8.2x in the following year, suggesting an improving industrial base. However, at the merger, when the CA swallowed the combined BCA Konzern, bad assets were, once again, not acknowledged and written off.¹⁰² The weakly performing companies that the CA had acquired at the merger thus meant a continuing burden for the bank. If only the VB's and the BCA's Konzern

⁹⁹ BoEA, file OV28/32, Letter from Kay to Siepmann, 10 May 1926.

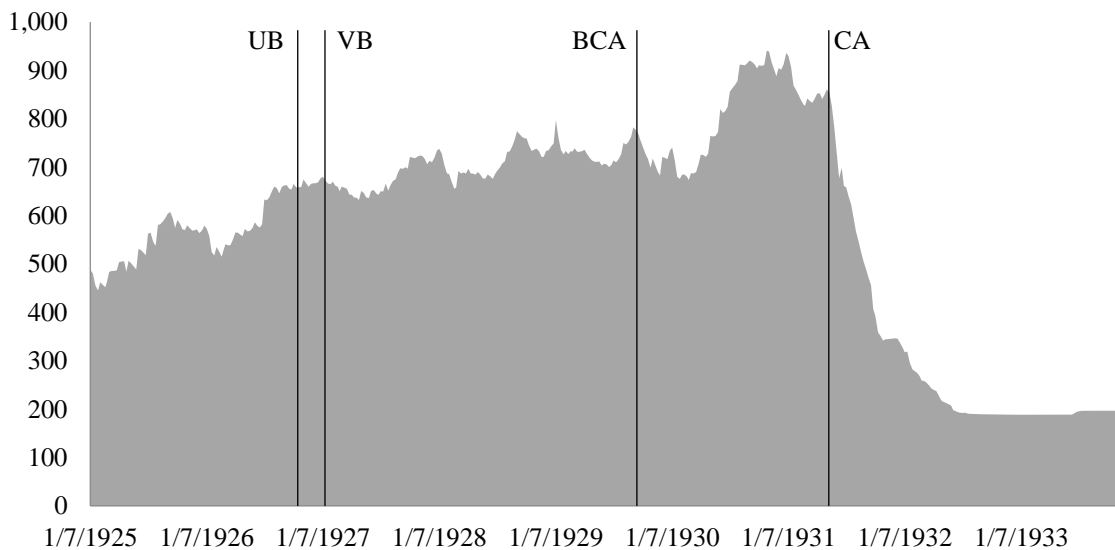
¹⁰⁰ BoEA, file OV28/1, Letter from the Foreign Office and Board of Trade to Norman, 9 Dec. 1926.

¹⁰¹ Aussch, *Als die Banken fielen*; Jobst and Kernbauer, *The quest*; the author's discussions with Dr. Nathan Marcus.

¹⁰² See Table 3.2 in Chapter 3.

had been amalgamated with the industrial base of the CA, the combined three-bank-network would have had a debt-to-profit ratio of 8.1x in 1930. That is, the BCA and VB's Konzerns would have improved on the solvency of the CA and would have strengthened the bank's tier-1 structure that had issues with collecting principal repayments from its borrowers, but no problems with receiving interest payments. Such a structure could have existed for a very long time, in theory, even in perpetuity. The problem hence resided in the UB Konzern. If only the UB's Konzern had been merged into the CA, the debt-to-profit indicator of the two-bank-Konzern would have been a whopping 33.4x. Viewed from this perspective, it is clear why the management of the CA resisted the merger with the BCA, which was forced on the bank by the Austrian authorities.¹⁰³

Figure 1.10 The reserves of the Austrian National Bank (million Austrian Schilling)



Source: ANB Mitteilungen, 1926-32.

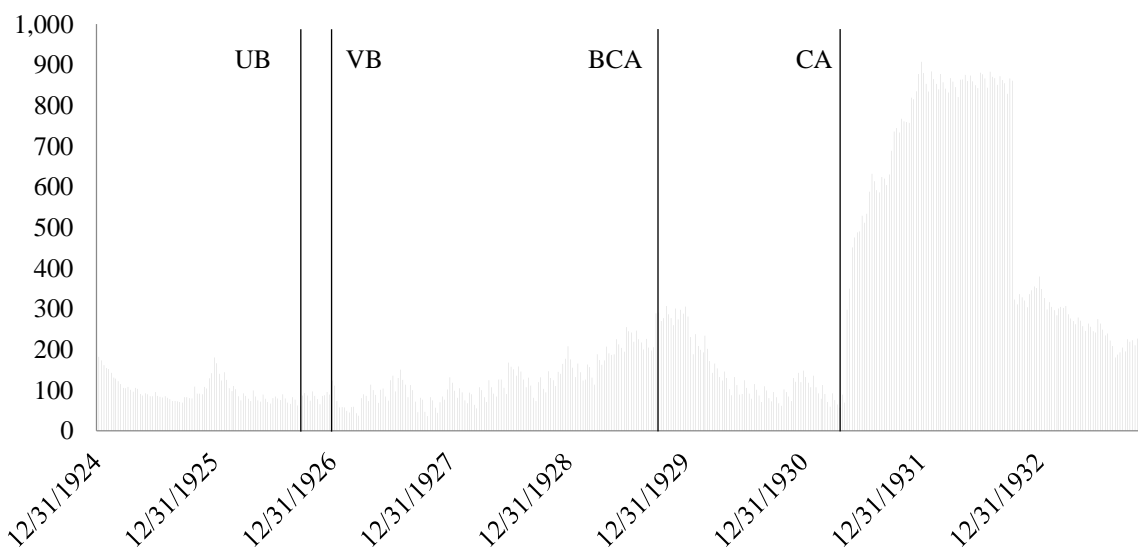
The final question to address is who eventually pulled the trigger on the four insolvent banks? The following analysis distinguishes between two periods: one before the date of the announcement of each bank's distress and the other afterwards. None of the four banks actually failed: they all decided to seek a bailout. Information on whether they were only insolvent or also

¹⁰³ Schubert, *The Credit-Anstalt*, pp. 42-3. See the discussion on this matter in Chapter 3.

illiquid when they sought the bailout may reveal important details about their motivations. Differentiating across domestic and foreign creditors is also essential to this investigation.¹⁰⁴

Figure 1.10 presents the weekly change in the ANB's reserves, and for each of the four banks, it indicates the date when the bank's distress was announced. If foreign creditors start a flight, banks turn to the central bank to purchase foreign currency, and this reduces the central bank's reserves. This did not occur in the days before the announcement of any of the four debacles. Further, in the case of the UB, the VB, and the BCA, there was also no significant decline in reserves following the announcement. The CA's case is different in this regard: here the announcement on 11 May 1931 triggered an enormous and continuous decline in ANB reserves. After this date, the flight of foreign creditors definitely contributed to the CA's illiquidity.

Figure 1.11 The rediscount of the Austrian National Bank (million Austrian Schilling)



Source: ANB *Mitteilungen*, 1926-33.

The question hence still remains: in the days preceding the announcement of their distress, were these banks illiquid - if not due to a foreign creditor flight then due to a domestic creditor

¹⁰⁴ The analyses review the domestic creditors discussed under the earlier section of the chapter. The only domestic creditor not analysed here is interbank lending. Unfortunately, there are data limitations for this financing source: interbank lending data are annual and are not disaggregated to bank. Available data points show a decline in interbank lending from 1930 to 1931, but it is unclear whether this happened before or after early May 1931, and it is unclear to what extent it affected the CA. For other years, the changes in interbank lending are not significant or show an increase. Due to data limitations, the chapter, therefore, draws conclusions without these data points. Nonetheless, since interbank lending made up a small portion of domestic creditors, they probably would not affect the conclusions.

flight? For domestic financiers, high frequency data are only available for depositors (monthly)¹⁰⁵ and the ANB's rediscount (weekly, depicted on Figure 1.11), which together made up approximately a quarter of the universal banks' financing sources. As Figure 1.11 shows, the ANB's rediscount did increase before the BCA's collapse, suggesting that the central bank was providing liquidity to the BCA. The bank also experienced a depositor flight immediately after the announcement of its distress. The VB's deposits were continuously increasing right until its merger with the BCA, and, based on Figure 1.11, there seems to be no increase in the ANB's rediscount before the announcement of the VB's merger with the BCA. This implies that this bank was liquid. The announcement of the UB's troubles also did not trigger significant changes to the ANB's rediscount (Figure 1.11). This bank's deposits did decline in the weeks before its merger with the BCA, but, by that time, the bank's distress had been public for more than five months. This suggests that the bank's merger with the BCA was decided when the UB was insolvent but still liquid. The CA's deposits were increasing prior to 11 May 1931, and before this date there was no change in the ANB's rediscount (Figure 1.11). These imply that the CA turned to the ANB for help when it was insolvent but still liquid. Following 11 May, however, within just a few days, the ANB's rediscount increased many-fold, suggesting an enormous domestic flight.

Panel 3 of Table 5 provides some clues about another important domestic creditor, the Konzern, which covered over a third of the universal banks' financing sources. Unfortunately, these data are annual and can thus only indirectly indicate the likely impact of Konzern creditors on bank liquidity. The data reveal that the UB Konzern in 1926 and the BCA combined Konzern in 1929 had a debt-to-profit ratio which very likely made their mother banks not only insolvent but also illiquid. The same does not apply to the VB. The VB Konzern was in tier-1 insolvency, implying that the bank was insolvent but very likely it was still liquid before its merger into the BCA.

The 1930 debt-to-profit figure in Panel 1 of Table 1.5 corresponds to the CA combined Konzern. In 1930, the bank's debt-to-profit ratio was in the illiquid, above 12x category. Panel 2 also shows that the actual reported cash income of the four Konzerns dropped from AS 103 million in 1929 to AS 76 million in 1930. Since in 1930 all four Konzerns were already owned by the CA, this drop in earnings directly affected only this bank. This suggests that the CA became illiquid by early 1931 because 30 per cent of its Konzern's cash income evaporated.

¹⁰⁵ ANB Mitteilungen, 1926-33.

High frequency data about the flight of domestic creditors thus provide conclusive evidence for the BCA and the VB. The data reveal that the former was illiquid before as well as after its distress was announced, while the latter was liquid right until its merger with the BCA. This supports the hypothesis that the VB did not actually fail but was a gift to the BCA for swallowing the UB. Evidence is, however, conflicting regarding the CA and the UB. It is unclear whether domestic creditors were fleeing these banks prior to the announcement of their distress. What is certain is that after this date, the UB experienced some, the CA an enormous domestic creditor flight.

Qualitative evidence may bring a bit more clarity to the case of the CA. The events on 8 May followed an internal decision within the CA which involved Zoltán Hajdu, a director of the bank, refusing to sign the CA's financial accounts for 1930. His claim was that the books contained misrepresentations and he would not put his name underneath 'until the usual method of drawing it up was changed'.¹⁰⁶ Hajdu's pivotal decision then had led to the next decision: to seek a bailout from the ANB. Why did Hajdu decide to break with the past at that very moment? James has posited that he may have developed moral reservations and simply could not continue with the cheating.¹⁰⁷ However, since by that time Hajdu had been a director of the CA for five years and had most likely been aware for years of the 'usual method' of preparing the accounts, it is unclear why his conversion happened in connection with the books of 1930. Why not a year earlier or a year later? Based on the evidence presented in this paper, a possible explanation is that by the end of the financial year of 1930, the performance of the CA's Konzern deteriorated to such a significant extent that it threatened not only the solvency but also the liquidity of the bank. The 'usual method' of hiding insolvency behind liquidity was no longer sustainable.

It thus appears that at least three of the four universal banks decided to seek a bailout because they could no longer continue with masking their insolvency behind liquidity. Chapter 3 argues that the universal banks enjoyed the implicit and the CA the explicit guarantee of support by the Austrian authorities in times of trouble. They thus turned to the ANB in the crisis, knowing they would be supported.

What made the CA's situation more complex than its predecessors' was that, after its merger with the BCA, there was simply no bigger fish in the pond, which could have supplied it

¹⁰⁶ James, *The end of globalization*, p. 53.

¹⁰⁷ James, *The creation and destruction*, p. 77.

with sufficient liquidity. As a result of acquiring the three other universal banks, the CA became a ‘super bank’ carrying 27 per cent of the financial system’s total assets under one roof, with all this amounting to 150 per cent of the total annual revenues of the state budget and 16 per cent of the GDP.¹⁰⁸ While the three banks that failed before the CA could find fellow financiers who were able to bail them out, the CA was simply too big and there was no other bank sufficiently large to supply it with liquidity to mask the massive tier-3 insolvency it had inherited. As this behemoth was struggling under illiquidity, it had no one to turn to but the state.

ONE BAD APPLE

This chapter has emphasized the importance of a domestic factor behind the Austrian banking crisis in 1931. The universal banking structure heavily exposed the largest banks to Austrian industry through their Konzerns. When Konzern corporations performed badly, as they did during the second half of the 1920s, so did the universal banks. The four banks that came under distress in 1925-31 were all insolvent from 1925 due to the weak performance of their Konzern. The chapter has also shown that one bad apple, the UB’s Konzern, spoiled the performance of the other universal banks and caused a systemic crisis in 1931. This finding suggests that the crisis may have been avoidable had the UB’s troubles been adequately managed. Finally, while it remains unresolved whether the CA was illiquid before it decided to seek a bailout, it is certain that after 11 May 1931, the flight of both domestic and foreign creditors contributed to the banks’ illiquidity.

Could this have been avoided? One option would have been allowing the UB to fail. The CA’s, the BCA’s, and the VB’s Konzerns were performing much better in relative terms. Had these banks not been poisoned with the UB’s Konzern, they may have survived. Their absorption of the UB’s failing corporations and their avoidance to acknowledge and write off non-performing assets were what caused them to fail. At the same time, since the universal banks were closely interconnected through their Konzerns, they were reluctant to let one member go under who might then have undermined the stability of the rest as well. Chapter 3 also argues that there may have been political reasons for not acknowledging past losses and letting universal banks fail. Not choosing this, however, eventually buried them all.

¹⁰⁸ The author’s own calculations based on Kausel, Németh, and Seidel, ‘Österreichs Volkseinkommen’ and *Statistisches Handbuch*, 1923-35.

Another option would have been a state bailout of the UB. Had this bank been provided sufficient state support to write off its non-performing assets, it would not have gone bankrupt and would not have had to be merged into other stronger banks whom it would gradually weaken and cause to fail. As Chapter 3 explains, what made this impossible was that the state was bound by restrictions set by financial markets and the League of Nations, which considered bank bailouts anathema to the orthodox fiscal and monetary principals of the time.

APPENDIX

The number of financial accounts in the bank database

Table A1.1 The number of financial accounts in the bank database - detailed

	Compass 1926			Compass 1927			Compass 1928		
	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting
Total	398	284	114	382	264	118	364	274	90
Universal bank	8	8	0	8	8	0	8	8	0
Other bank	87	49	38	75	34	41	62	44	18
Mortgage bank	9	9	0	9	8	1	8	8	0
Savings bank	294	218	76	290	214	76	286	214	72
	Compass 1929			Compass 1930			Compass 1931		
	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting
Total	352	272	80	342	311	31	340	318	22
Universal bank	8	6	2	6	6	0	6	5	1
Other bank	48	37	11	40	36	4	39	34	5
Mortgage bank	9	8	1	10	8	2	9	8	1
Savings bank	287	221	66	286	261	25	286	271	15
	Compass 1932			Compass 1933			Compass 1934		
	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting	Total	Reporting	Non-reporting
Total	334	315	19	329	313	16	321	312	9
Universal bank	5	5	0	5	5	0	5	5	0
Other bank	36	31	5	34	31	3	31	29	2
Mortgage bank	10	8	2	10	9	1	10	10	0
Savings bank	283	271	12	280	268	12	275	268	7

The representativeness of the bank database

Table A1.2 The representativeness of the bank database, 1929 (million Austrian Schilling)

Category	Source	Value
Total assets		
Total assets for the whole financial sector	This database	6,184
Total assets for Sparkassen	This database	2,213
Total assets for joint-stock banks	This database	3,971
Total assets for joint-stock banks	Weber, 'Vor dem großen Krach', p. 488.	3,800
Total assets for the whole financial sector	<i>Statistisches Handbuch</i> , 1931, pp. 134, 139.	4,873
Total assets for Sparkassen	<i>Statistisches Handbuch</i> , 1931, p. 139.	1,524
Total assets for joint-stock banks	<i>Statistisches Handbuch</i> , 1931, p. 134.	3,366
Deposits		
Deposits for the whole financial sector	This database	2,606
Deposits for the whole financial sector	Weber, 'Vor dem großen Krach', p. 308.	1,435
Deposits for the whole financial sector	<i>Statistisches Handbuch</i> , various issues.	1,945
Creditors		
Creditors for the whole financial sector	This database	2,693
Creditors for the whole financial sector	<i>Statistisches Handbuch</i> , 1931, pp. 136, 140.	2,210
Short-term borrowers		
Short-term borrowers (Debitoren) of the whole financial sector	This database	2,858
Short-term borrowers (Debitoren) of the whole financial sector	Weber, 'Vor dem großen Krach', p. 319.	2,731
Short-term borrowers (Debitoren) of the whole financial sector	<i>Statistisches Handbuch</i> , 1931, pp. 136, 139.	2,275

CHAPTER 2 - THE HUNGARIAN TWIN CRISIS OF 1931

Even though Germany, Austria, and Hungary each experienced a major financial crisis simultaneously in 1931, only the German and Austrian episodes have been investigated in depth. This chapter offers a thorough assessment of the missing piece. It finds that the Hungarian crisis followed Schnabel's interpretation of the German experience. The primary reason for the weakness of the Hungarian financial sector was banks' excessive exposure to agricultural loans. The fragility of the currency was the result of an early balance-of-payments crisis in 1929. Just as in Germany, the vulnerability of the banking and monetary systems became interconnected and culminated in a twin crisis in 1931.

The Great Depression has served as a general reference point for the Great Recession and Europe's recent debt crises. The interwar depression was a global, and in many countries, a prolonged recession which had a turning point: 1931. This year saw a series of financial crises first emerging in Austria with the announcement of the Credit-Anstalt's losses on 11 May 1931, subsequently in Germany and Hungary, and ultimately reaching Britain. Just as recent financial crises have brought into question long-held tenets about core policy issues, including the viability of the euro currency or the independence of monetary policy, 1931 was also an affront to contemporary principals, such as the gold-exchange standard and the free flow of capital. Why and how did Central Europe get into the crisis of 1931?

For Germany and Austria, this question has already been investigated in depth. Researchers demonstrate that government policy was not the exclusive, or not even the leading cause of the crisis. It has been shown that in both countries the fragility of the banking system led to the disaster.¹⁰⁹ For Hungary, however, the third country to experience a meltdown at the very same time, an equally rigorous assessment is yet to be established. This is what this chapter aims to accomplish.

¹⁰⁹ Germany: Balderston, 'German banking'; James, 'The causes'; Schnabel, 'The German twin crisis'; Schnabel, 'The role of liquidity'; Schnabel, 'Reply'; Temin, 'The German crisis'; Temin and Ferguson, 'Made in Germany'. Austria: Schubert, *The Credit-Anstalt*; Weber, 'Vor dem großen Krach'.

The first section offers a review of the literature on the Hungarian crisis of 1931. This is followed by a description of the data and the methodology. The subsequent two sections analyse the pre-crisis period in the late 1920s and assess the factors that had contributed to the weakness of the monetary and banking system, respectively. The next section investigates in detail the events before and during the crisis, and the last section concludes.

REVIEW OF THE LITERATURE

Most of the existing literature identifies Hungary's 1931 episode as a currency crisis, highlighting two exogenous factors behind the event.¹¹⁰ On the one hand, falling agricultural prices had a powerful negative impact on the balance-of-payments as they sharply reduced export revenues. Since export earnings directly influenced the foreign exchange reserves of the Hungarian National Bank (HNB), their decline caused reserves to fall and weakened the stability of the currency. On the other hand, access to foreign capital became limited prior to the crisis. Since the Hungarian state had a large debt denominated in foreign currency and was accumulating a budget deficit that had to be financed from external sources, the decline in foreign capital inflows was a shock to the spendthrift state and placed pressure again on the reserves of the central bank. 'Doubts consequently arose about whether the central bank would be able to continue defending the gold standard parity. Those doubts prompted the withdrawal of foreign deposits to avoid the capital losses that would be suffered in the event of devaluation.'¹¹¹

The flight of foreign creditors is essential to this interpretation. Nevertheless, regarding its timing, the literature seems to disagree. Earlier works stress the importance of the Wall Street Crash,¹¹² more recent studies identify the change in the policy stance of the Federal Reserve that shifted the direction of capital flows towards the United States and away from Europe.¹¹³ Yet others

¹¹⁰ The key studies on the matter are Berend, *Decades of crisis*; Berend and Ránki, *Magyarország gazdasága*; Berend and Szuhay, *A tőkés gazdaság*; Eichengreen, *Golden fetters*; Ferber, 'Lépeshátrányban'; James, *The end of globalization*; Pogány, 'Válságok és választások'; Pogány, 'Financial crises'; Tomka, *A magyarországi pénzügyintézetek*.

¹¹¹ Eichengreen, *Golden fetters*, p. 261.

¹¹² Berend-Szuhay, *A tőkés gazdaság*, p. 226; Botos, *Az önálló jegybank*, p. 90.

¹¹³ Accominotti and Eichengreen, 'The mother of all sudden stops'; Eichengreen, *Golden fetters*, p. 226; Tomka, *A magyarországi pénzügyintézetek*, pp. 114-5.

seem to imply that the mass capital flight started a few months prior to the Credit-Anstalt's collapse,¹¹⁴ or that it was invoked by the Credit-Anstalt's distress.¹¹⁵

Regarding the trigger, most agree with Eichengreen, who argues that 'Hungary's financial crisis was directly connected to events in neighbouring Austria.'¹¹⁶ Due to the collapse of Austria's largest bank, foreign capital began fleeing from Hungary as well.¹¹⁷ The foreign capital flight was a shock to the HNB's reserves and led to a currency crisis. A bank holiday was introduced, effective from 14 July 1931, lasting for three days.¹¹⁸ Capital controls followed on 17 July, and from 23 December, Hungary stepped on the route towards defaulting on its foreign currency debt.¹¹⁹

Since most of the literature regards the distress of the Hungarian banking system as a consequence of the currency crash, there is limited investigation into how banks performed during the 1920s and what role they played in 1931. Tomka argues that the banking sector was strong and resilient and that Hungarian financial institutions were not guilty of the excesses that characterized their Austrian counterparts. He suggests that the swiftly-contained distress that the banking sector experienced in 1931 was the result of the currency crisis.¹²⁰ Pogány posits that the country experienced 'multiple financial crises' in 1931, and she traces the causes back to the '...difficult situation of the Hungarian public finances, the significant foreign indebtedness, severe export difficulties and low level of bank liquidity.'¹²¹ She provides some evidence for the symptoms of banking fragility, but does not identify the mechanisms behind the crisis.

Although this is not explicitly stated, most authors seem to imply that the Hungarian crisis in 1931 best fits into the first-generation theoretical models of financial crises.¹²² According to first-generation models, financial crises emerge due to currency problems arising from the internal and external imbalance of the fixed exchange rate system, and the collapse of the banking system is only collateral damage. This chapter, however, argues that the Hungarian crisis better qualifies to the category of third-generation models, which assign an important role to the banking system.¹²³

¹¹⁴ Pogány, 'Financial crises' p. 8.

¹¹⁵ Pogány, 'Válságok és választások', p. 33, 35.

¹¹⁶ Eichengreen, *Golden fetters*, p. 270.

¹¹⁷ Pogány, 'Párhuzamos történetek', p. 1224; Pogány, 'Válságok és választások', p. 33; Tomka, *A magyarországi pénzügyintézetek*, p. 116.

¹¹⁸ *HF*, 15 July 1931.

¹¹⁹ Botos, *Az önálló jegybank*, p. 124; Ellis, 'Exchange control', p. 89.; Varga, *Az aranypengő*.

¹²⁰ Tomka, *A magyarországi pénzügyintézetek*, pp. 122-3.

¹²¹ Pogány, 'Financial crises', pp. 3, 18; Pogány, 'Zwillingskrisen'.

¹²² Krugman, 'A model'.

¹²³ Kaminsky and Reinhart, 'The twin crises'.

I claim that, just as Germany in Schnabel's interpretation, Hungary experienced a twin crisis in June-July 1931.

I will demonstrate that the weakness of the banking system and the vulnerability of the currency developed independently during the second half of the 1920s. The lead cause of the latter was a balance-of-payments crisis in 1929, which depleted the HNB's reserves. The reason behind the banking system's distress was the excessive exposure to agricultural loans, which, due to the sector's deteriorating export performance, were degenerating into non-performing loans from as early as 1927. The crisis of 1931 emerged in the banking system and financial and monetary weaknesses became interconnected between 15 June and 15 July 1931. The banking system's deepening problems placed pressure on the already vulnerable currency and this, due to the fixed exchange rate system and hence the conflicting motives of the central bank, led to a currency crisis. The latter, in turn, further deepened the bank panic, activating a 'vicious circle', in which the two crises reinforced one another, culminating in a severe twin crisis.

DATA AND METHOD

To thoroughly reassess the genesis and the evolution of the Hungarian crisis, I have built a complex database, which includes the balance sheets and profit and loss statements of financial institutions for 1926-33.¹²⁴ I have collected banks' financial accounts from the *Hungarian Compass* which was a compilation of the annual reports of joint-stock banks, savings banks, and credit cooperatives. My database includes the joint-stock banks and the savings banks. Together joint-stock banks and savings banks account for 71-95 per cent of the entire financial system.¹²⁵

The database includes 950 financial institutions in total: 24 'issue banks', 482 'other banks', and 444 'savings banks'.¹²⁶ In 1926, there were 947 financial institutions, with three more established in subsequent years. Not all financial institutions reported their balance sheet and profit

¹²⁴ With the term financial system/sector, banking system/sector, or financial institutions/banks, I refer to all three types of players in my database.

¹²⁵ Please see Table A2.1 in the Appendix on the representativeness of the database. Credit cooperatives are not included because, first, they are numerous but tiny and make up only a small portion of the total financial system; and second the *Hungarian Compass* does not report their financials and I am not aware of any source which reports their financials on a disaggregated basis, that is, by entity.

¹²⁶ Issue banks are 'emissziós intézetek' in Hungarian. Their Hungarian name and the English translation might be misleading: these banks were not note issuing banks; they were underwriters, i.e. they had the right to issue securities. When I use the term financial system/sector, banking system/sector, or financial institutions/banks, I refer to all three types of players.

and loss account for each year, as Table 2.1 indicates. Institutions that chose not to report their accounts for a given year were small and were usually in distress. Therefore, the database is biased, if at all, towards well-performing banks.

In connection with Austrian, and especially Viennese banks, it became clear after the 1931 crisis that there were egregious misrepresentations in their financials. A contemporary assessment suggests that the financial accounts of Hungarian institutions did not suffer from similar misstatements. What this investigation did point out, and what I must take into consideration, is that Hungarian banks did not write off non-performing loans.¹²⁷

Table 2.1 Description of the bank database

	Number of balance sheets reported			Total
	Issue banks	Other banks	Savings banks	
1926	20	228	361	609
1927	20	231	361	612
1928	20	218	341	579
1929	19	204	328	551
1930	19	201	313	533
1931	20	182	297	499
1932	20	160	277	457
1933	20	158	260	438
	Number of profit & loss accounts reported			Total
	Issue banks	Other banks	Savings banks	
1926	20	99	216	335
1927	19	109	224	352
1928	20	129	234	383
1929	19	118	230	367
1930	19	114	227	360
1931	20	105	215	340
1932	19	105	206	330
1933	20	103	194	317

Source: *Hungarian Compass*, 1925/6 - 1934/5.

The annual database of bank financials is complemented with a higher frequency dataset. I collected weekly data on the main aggregates that describe the performance of the country's monetary system: the reserves of the central bank, the volume of the rediscount, banknotes in

¹²⁷ *KB*, 1. p. 14; *KB*, 7. p. 6.

circulation, and the gold cover, which is the ratio of the foreign currency and the gold reserves of the central bank, and the total banknotes in circulation. The data run from 1927 through 1933.¹²⁸ In addition, I also constructed a monthly deposit dataset aggregated for the 13 (later 12) largest issue banks, the 35 (later 34) largest savings banks, as well as for the Postal Savings Bank, which covers approximately 80 per cent of the total deposits of my annual bank database.¹²⁹ The dataset is balanced from 1929 through 1933.

Finally, I use a number of macroeconomic indicators to monitor the overall foreign currency exposure and economic performance of the country: annual balance-of-payments, monthly balance-of-trade statistics, national income, annual fiscal deficit, and national debt.¹³⁰

Using this rich dataset, I conduct two levels of analyses. Using primarily annual data, first, I investigate how and why the weakness of the monetary system and the banking system cumulated from the second half of the 1920s. Second, relying predominantly on high frequency data, I reassess the sequence of events in the banking system and the monetary system just before and around the eruption of the crisis. While the purpose of the first analysis is to find the causes, this second, event analysis aims to identify the trigger and clarify the timing of the episode.

PRE-CRISIS CURRENCY WEAKNESS

The literature argues that three factors had been behind the weakness of the currency: fiscal deficits, an excessive national debt in foreign currency, and balance-of-payments difficulties. I will review the evidence for these three factors and assess the extent to which they contributed to the vulnerability of the monetary system prior to 1931.

Fiscal deficit

From 1924, Hungary's public finances were closely monitored by the League of Nations due to the fact that the country's economy, just like Austria's, was stabilized through a League reconstruction scheme. In the post-war turmoil, the state, being unable to raise funds from any other source, resorted to financing itself through the printing press of the central bank, and this had led to

¹²⁸ *REA*, 1. 1929, pp. 14-5; *REA*, 6. 1930, p. 10; *REA*, 11. 1931, p. 27; *REA*, 14. 1932, p. 18; HNA, file Z12, bonds (in Hungarian: csomó) 128-9.

¹²⁹ *REA*, 2. 1929, pp. 24-5; *REA*, 6. 1930, pp. 16-7; *REA*, 14. 1932, pp. 24-6.

¹³⁰ Budget: *SR* 1938. 4.; balance-of-payments: *SR*, 9. 1931; *SR* 8. 1932; *SR* 9. 1933; balance-of-trade: *MSR*, XXXI, 1-3, 1928; *MSR*, XXXIV, 1-3, 1931; national income: Eckstein, *National income*, Table 1, p. 14; national debt: various sources indicated in Table 2.3.

hyperinflation.¹³¹ The years of instability were ended by a large foreign loan arranged by the League.¹³² The financing was provided under strict conditions: the requirement of a balanced budget and an independent central bank, the introduction of the fixed exchange rate system and free capital flows, and the acceptance of the surveillance of the League to ensure that all these conditions were met. International control lasted until mid-1926 but could return in case Hungary deviated from disciplined public finances.

First-generation financial crisis models suggest that budgetary imbalances foretell future currency depreciation. If state finances are loss-making, the loss will need to be somehow financed, and this makes investors concerned about the sustainability of the peg.¹³³ The literature argues that the country had a fiscal problem already in the 1929/1930 budget and financing the deficit was a challenge. Based on that, the literature implies that there was pressure on the fixed rate and emphasizes that the matter was so severe that it even brought into question the sustainability of the state because ‘Covering the deficit became an insurmountable problem.’¹³⁴

Table 2.2 Budget deficit (million pengő)

	Public revenues	Public expenses	Revenues of state-owned companies	Expenses of state-owned companies	Total balance	Total balance as % of national income
1924/5	736.7	644.0	338.8	361.9	69.6	1.4%
1925/6	822.7	729.3	413.0	418.1	88.3	1.5%
1926/7	954.8	806.5	446.3	443.5	151.1	2.6%
1927/8	987.1	891.1	461.0	463.2	93.8	1.5%
1928/9	983.9	974.4	499.3	498.4	10.4	0.2%
1929/30	951.6	974.0	472.3	504.2	-54.3	-0.8%
1930/1	916.7	1,074.9	481.9	553.2	-229.5	-4.0%
1931/2	805.6	954.1	402.4	433.6	-179.7	-3.6%
1932/3	741.1	781.2	334.5	402.9	-108.5	-2.4%
1933/4	765.5	755.4	353.5	429.9	-66.3	-1.5%

Source: SR, 1938, 4.; national income figures from Eckstein, *National income*, Table 1, p. 14.

¹³¹ Banknote issue functions were at the time fulfilled by the Magyar Királyi Állami Jegyintézet. Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 944-75.

¹³² Ormos, *Az 1924. évi államkölcson*; Péteri, *Global Monetary Regime*.

¹³³ Krugman, ‘A model’.

¹³⁴ Pogány, ‘Válságok és választások’, p. 33; Pogány, ‘Financial crises’, p. 9 (quote from here).

Table 2.2 provides evidence for Hungary's budget matters. Hungary had a deficit of 54.3 million pengős in the 1929/1930 financial year, which amounted to 0.8 per cent of the national income. Losses increased in 1930/1931 to four per cent of the national income. The deterioration of the deficit was due primarily to rising expenses, whereas revenues only marginally declined this year. The fundamental reason behind the increase in state expenses in the 1930/1931 financial year was the government's countercyclical measures. As the country's national income dropped by 11 per cent in nominal terms, the government introduced subsidies and public work programs to alleviate the impact of the downturn.¹³⁵ Then in the 1931/1932 budget year the state suffered a significant revenue decline due to worsening economic circumstances. This was mitigated by state austerity which brought the level of the deficit below the level of 1930/1931.

Should this deficit be considered high? An international comparison provided by James suggests that Hungary's deficit was not outstanding.¹³⁶ Further, there is evidence that Hungary's main creditor, the London Rothschilds (NMR) - on whom the burden of deficit financing was to fall - did not consider the state's losses excessive in April 1931. The Hungarian state received an advance of 87 million pengős from the NMR syndicate in December 1930 which was supposed to finance investments.¹³⁷ In reality, however, the money was spent on the financing of increased state expenses. After finding this out, NMR sent a consultant to review Hungary's finances.¹³⁸ Per Jacobsson issued his report on 4 April 1931 and pointed out that while there was in fact a deficit, this amounted only to 85 million pengős and was manageable.¹³⁹ The financiers' optimistic view of the situation was underscored by the fact that both Jacobsson and Bank of England officials recommended that, since the difficulty was temporary, the deficit may be financed with the help of the central bank.¹⁴⁰ The Prime Minister and the President of the HNB however, refused to do that.¹⁴¹ Instead, the government set out to manage the situation by increasing taxes and lowering expenditures.

¹³⁵ BoEA, file OV33/79, Note of a conversation between Jacobsson and Jakabb, 26 March 1931; Eckstein, *National income*, Table 1, p. 14.

¹³⁶ James, 'Financial flows', p. 608.

¹³⁷ *HF*, 19 Nov. 1930; BoEA, file OV33/79, Note of conversations between Siepmann and Popovics, 10 Feb. 1931.

¹³⁸ BoEA, file OV33/79, Note of conversations between Siepmann and Popovics, 10 Feb. 1931.

¹³⁹ BoEA, file OV33/79, Letter from Jacobsson to Siepmann, 4 April 1931.

¹⁴⁰ BoEA, file OV33/79, Letter from Jacobsson to Siepmann, 4 April 1931; BoEA, file OV33/79, Note of conversations between Siepmann and Popovics, 10 Feb. 1931.

¹⁴¹ BoEA, file OV33/79, Note of a conversation between Jacobsson and Popovics, 1 April 1931; BoEA, file OV33/79, Note of a conversation between Jacobsson and Bethlen, 31 March 1931.

The importance of the Jacobsson report cannot be overstated. It was a statement on behalf of one of Hungary's largest foreign financiers on the stability of the country's state finances as late as April 1931.¹⁴² Further, the fact that the Bank of England, the bastion of contemporary liberal orthodoxy, suggested that the HNB may finance the deficit confirms that the losses were minor. Finally, if the deficit as of April 1931 was only 85 million pengős, then, arguably, the difference between the 85 million in April and the 229.5 million pengős as of 30 June 1931 (the end of the fiscal year, see Table 2.2) must have been accumulated primarily as a result of the crisis. This suggests that the deficit of four per cent of the national income was largely an outcome, rather than a cause of the crisis.

National debt

The second factor that the literature pinpoints as a cause behind the currency crisis in 1931 is the national debt. Authors argue that Hungary had unsustainably large, foreign currency denominated liabilities, mostly short-term.¹⁴³ The foreign currency denominated debt service again imposed pressure on the fixed exchange rate and raised doubts about its sustainability, in accordance with first-generation crisis models.

Table 2.3 summarizes the findings of all studies reviewed for this chapter, which have expressed a position on the level of Hungarian debt denominated in foreign currency. Most items listed refer to debt at the end of 1931 and there are only two, which address the pre-crisis situation: items one and two. Based on item one, whose ultimate source is the Bank of England Archive, the country's foreign debt was 2,020 million pengős at the end of 1927, which was approximately 33 per cent of the national income. According to item two, Hungary's foreign national debt was 2,573 million pengős at the end of 1929, which was approximately 37 per cent of the national income. Using these two sources as well as the country's balance-of-payments, I estimated the foreign national debt for 1930, which I present in the last row of Table 2.3. Based on my calculations, it amounted to 2,875 million pengős, i.e. 42 per cent of the national income and under 50 per cent of the GNP.¹⁴⁴

¹⁴² Pogány, 'A Jacobsson-jelentés' reports on the Jacobsson paper but does not use it as an argument for limited fiscal problems and in Pogány, 'Válságok és választások' and 'Financial crises' the author argues that the country had serious fiscal problems.

¹⁴³ Berend, *Decades of crisis*; Berend and Szuhay, *A tőkés gazdaság*; Ferber, 'Lépeshátrányban'; Ferber, 'Vita'; Pogány, 'Financial crises'.

¹⁴⁴ Eckstein, *National income*, Table 1, p. 14; James, 'Financial flows', p. 608.

Again, the same question arises: should this be regarded a high figure? Compared to Germany (70-90 per cent) Hungary's debt burden does not seem excessive.¹⁴⁵ Further, the debt level that is unsustainable in the midst of a crisis is not necessarily unsustainable prior to the crisis. The balance-of-payments in Table 2.4 actually reveals that Hungary had no problem servicing its foreign currency obligations in and before 1930. In 1930, the country's current account shows that it paid 195 million pengős on interest and dividends and, based on its capital account, debt amortization was 112 million pengős. That is, the total debt service was 307 million pengős. At the same time, during 1930, the country received 389 million pengős of capital and, since its trade account was in surplus, this proved sufficient for covering its foreign capital need related to the debt service. There is hence no indication that the debt level was unsustainable in 1930.

Table 2.3 National debt denominated in foreign currency (million pengő)

Reference number	Date	State debt	Municipality and private debt	Total debt	Term of loan	Notes on sources
1a	1927	762	708	1,470	Long	a)
1b	1927			550	Short	a)
1 total	1927			2,020	Long & short	a)
2	1929	1,337	1,236	2,573	Long	b)
3	1931	1,629	2,465	4,094	Long & short	c)
4	1931			3,700	Long & short	d)
5	1931			4,094	Long & short	e)
Estimate	1930			2,875	Long & short	The author's estimate. ^{f)}

Note: a) BoEA, file OV9/234, Copy of a letter received by Sir William Goode from Dr Iklodi Szabo of the Hungarian Finance Ministry, 17 Dec. 1927; b) Botos, *Az önálló jegybank*, pp. 33-34, based on HNA, file Z12, item 8; Ránki (1976); Óvári Papp (1934); c) Botos, *Az önálló jegybank*, pp. 123-4, based on League of Nations; d) Ferber, 'Lépeshátrányban', p. 45. Ultimate source not provided due to restrictions; e) Pogány, 'Párhuzamos történetek', p. 1223, based on Károlyi Gyula miniszterelnök jelentése; f) BoEA figure (item 1 total) increased with the change in the balance-of-payments for 1928-1930 based on Table 2.4.

Debt was a concern because the country was dependent on foreign capital. Its current account was not strong enough to generate the necessary foreign currency capital to cover the

¹⁴⁵ Ritschl, 'Reparations', pp. 5, 37 - referring to foreign debt/GDP.

Table 2.4 Balance-of-payments (million pengő)

			1926	1927	1928	1929	1930	1931	1932
Inflow	Current account	Trade	878	801	819	1,066	945	596	343
		Gold	0	0	0	0	0	1	0
		Interest and dividends	9	22	20	15	13	15	1
		Other items	63	74	148	157	153	122	53
		Total	950	897	987	1,238	1,111	733	397
	Capital account	Mid- & long-term capital	206	364	446	319	377	120	10
		Short-term capital	0	230	187	58	12	515	8
		Total	206	593	633	376	389	634	18
	Total		1,156	1,490	1,621	1,614	1,500	1,368	415
	Outflow	Current account	Trade	954	1,149	1,189	1,107	883	582
Gold			1	2	5	5	8	6	4
Interest and dividends			97	140	163	171	195	218	19
Other items			46	86	132	168	163	152	47
Total			1,098	1,376	1,489	1,451	1,249	958	422
Capital account		Mid- & long-term capital	38	86	131	100	179	100	9
		of this: debt amortisation			42	45	112	63	9
		Short-term capital	21	28	0	68	0	247	3
		Total	59	114	131	168	179	347	12
		Total		1,157	1,490	1,620	1,619	1,428	1,305
Balance-of-payments	Current account	Trade	-76	-348	-370	-41	62	14	-9
		Gold	-1	-2	-5	-5	-8	-5	-3
		Interest and dividends	-87	-117	-143	-157	-182	-203	-19
		Other items	17	-12	16	-11	-10	-30	6
		Total	-148	-479	-502	-213	-138	-225	-25
	Capital account	Mid- & long-term capital	167	278	315	218	198	20	1
		Short-term capital	-21	202	187	-10	12	268	5
		Total	147	480	502	208	210	287	7
		HNB reserves	-24	-27	54	182	3	258	5
		Private capital	170	506	448	26	206	29	2
Overall balance		-1	0	1	-6	71	62	-18	

Note: 1929 and 1931 figures for HNB reserves take into consideration bailout loans received.

Source: SR, 9. 1931; SR, 8. 1932; SR, 9. 1933.

financing need related to debt service. As long as approximately 300 million pengős of foreign capital was flowing in (approximately four per cent of the national income in 1930), the country's finances were sustainable. However, once the inflow stopped, the 300 million pengős put pressure on the reserves of the central bank. In the weeks before the crisis, however, there is no indication that the inflow of capital was threatened. In fact, the opposite was the case. As Table 2.4 depicts, the net private capital inflow increased from 1929 to 1930. Further, right before the crisis, the Jacobsson report confirmed that NMR was willing to provide further financing to the state later in 1931 and newspapers also reported on the fact that the conditions on the new state loan had been settled.¹⁴⁶ It thus appears that foreign indebtedness was a problem during and after the crisis but not before.

Balance-of-payments

The literature's third argument regarding the causes of the currency crisis in 1931 points out that the fall in commodity prices and the flight of US capital from Europe as a result of the rate increase of the Federal Reserve in 1928 were a shock to primary producers like Hungary.¹⁴⁷ Péteri refers to this period in Hungarian monetary history as the 'small crisis of 1929'.¹⁴⁸

I argue that in fact, the situation was so serious that from early to mid-1929 Hungary experienced a balance-of-payments crisis. This early episode was a typical emerging market, post-stabilization crisis, as it is described by Reinhart and Végh and recently discussed in connection with the interwar period by Accominotti and Eichengreen.¹⁴⁹ Through the analysis of recent emerging market examples, Reinhart and Végh show that post-stabilization currency crises are widespread and they follow the same pattern.¹⁵⁰ What the authors describe is exactly the path that had led Hungary to the balance-of-payments crisis in the late 1920s.

The success of the League of Nations' reconstruction program in Hungary brought with it a large inflow of foreign loans. Table 2.4 shows that after 1926 there was a substantial increase in the inflow of foreign capital and during 1927 and 1928, a total of 1,226 million pengős entered the country, equivalent to 10 per cent of the national income each year. The inflow of foreign capital

¹⁴⁶ BoEA, file OV33/79, Note of a conversation between Jacobsson and Bethlen, 31 March 1931; BoEA, file OV33/79, Letter from Jacobsson to Siepmann, 4 April 1931.

¹⁴⁷ Eichengreen, *Golden fetters*, pp. 226-31.

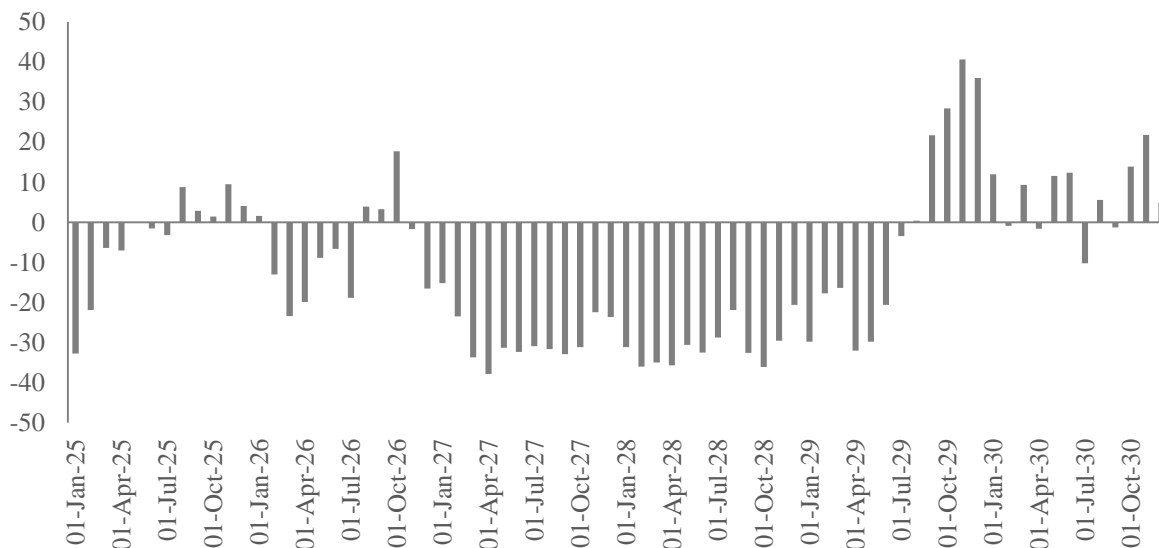
¹⁴⁸ Péteri, *Global monetary regime*, pp. 165-92.

¹⁴⁹ Accominotti and Eichengreen, 'The mother of all sudden stops'; Reinhart and Végh, 'Do exchange'.

¹⁵⁰ Reinhart and Végh, 'Do exchange', p. 4.

during the two years after the stabilization enabled the country to finance the imbalances of its trade account. Figure 2.1 shows that the balance-of-trade was in a deficit throughout the whole of 1927 and 1928. The total deficit in these two years was 718 million pengős.

Figure 2.1 Trade account (million pengő)



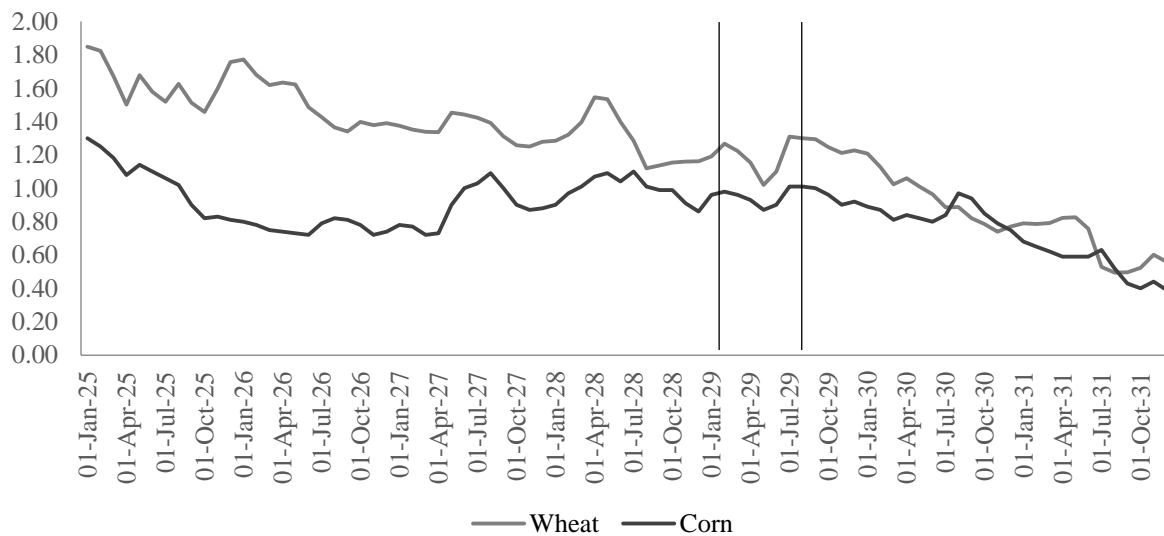
Source: MSR, XXXI, 1-3, 1928; MSR, XXXIV, 1-3, 1931.

The problem occurred when the volume of foreign capital inflow significantly dropped in 1929. Whereas in 1928 the total inflow was 633 million pengős, by the end of 1929 it fell to 376 million pengős. This sudden slow-down created a liquidity crunch in the economy from early 1929. Former high levels of imports were no longer sustainable and the country was forced to sharply reduce the volume of goods it imported. The economy quickly adjusted and, by the second half of 1929, these actions translated into a trade account surplus and thus the current account deficit was reduced. Nevertheless, the first half of 1929 was critical. Since foreign capital was available to a more limited extent than before, the economy had to resort to utilizing the reserves of the central bank to meet these immediate foreign currency obligations. As Table 2.4 shows, since net private foreign capital inflows declined from 448 million pengős in 1928 to 26 million pengős in 1929, 182 million pengős of the central bank’s reserves were depleted in 1929. As predicted by Reinhart and Végh’s model, this led to a currency crisis.

The root cause of this episode was the sudden stop of foreign capital flows while the decline in agricultural prices did not play a role in this event. As Figure 2.2 shows, the prices of Hungary’s

main agricultural export products had been declining from as early as 1925. Neither the price of wheat nor that of corn experienced a sudden change during the first half of 1929. The ability of the economy to carry out a sudden reversal of the trade account in mid-1929 also suggests that agricultural prices did not play a role in the deficit of the trade account. Prices were just as low before and after the adjustment. That is, the trade account had a deficit until mid-1929 simply because capital was available to finance the imports. Once this capital dried up, the economy was forced to adjust, and it quickly adapted to the new circumstances by more than halving its financing need. In 1930, when agricultural prices were just as low as before the balance-of-payments adjustment, the export surplus was 77.5 million pengős.

Figure 2.2 U.S. wholesale price of wheat and corn in Chicago (US dollar/bushel)

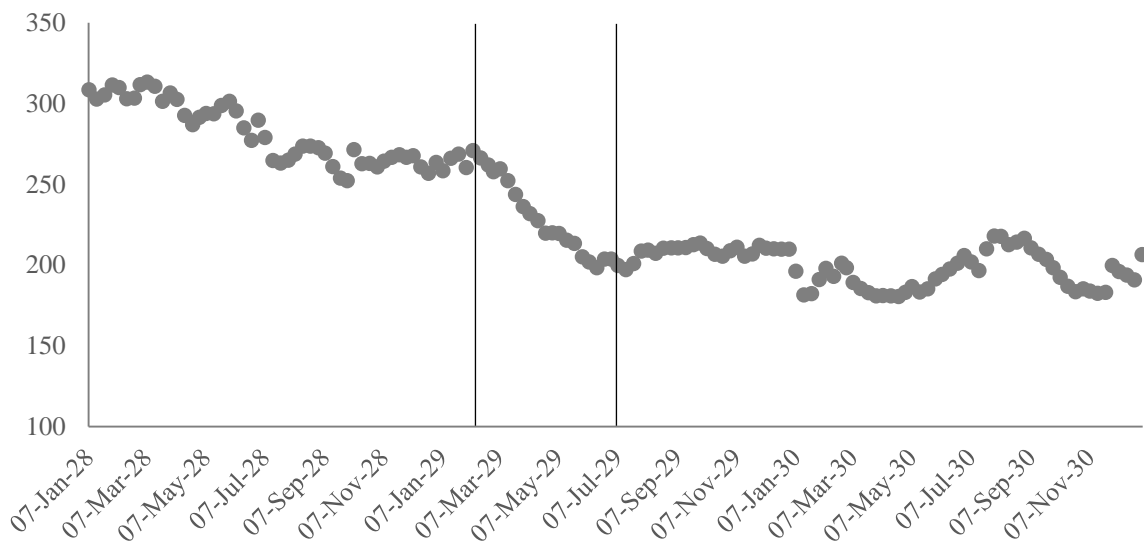


Source: <http://www.nber.org/databases/macrohistory/rectdata/04/m04001a.dat>; accessed on 22 March 2016.

What was the impact of the 1929 balance-of-payments crisis? Figure 2.3 shows the HNB's metallic reserves for 1928-30. The central bank's safety cushion suffered a big blow in the 1929 crisis. Whereas at the beginning of 1928 the HNB's reserves were around 300 million pengős, they declined to approximately 200 million pengős by mid-1929. That is, the national bank had lost one third of its reserves within just one year. It was due to the decline in the volume of available foreign capital and the subsequent balance-of-payments crisis that the reserves of the HNB were significantly depleted.

In response to falling reserves, the HNB started to gradually increase the base rate from six per cent on 14 July 1928 to eight per cent by 3 November 1929.¹⁵¹ It also became ever more selective when it came to rediscounting bills, i.e. providing liquidity for the economy.¹⁵² In May 1929 the pressure on the currency was so serious that the central bank had to request international emergency support. The HNB first received a bridge loan facility from the Bank of England in the amount of 500,000 British pounds.¹⁵³ Then in August 1929, a larger, 20 million US dollar loan was provided to the bank by a group of international central banks.¹⁵⁴ These foreign currency loans were sufficient to stabilize the currency.

Figure 2.3 Reserves of the Hungarian National Bank (million pengő)



Source: HNA, file Z12, bonds 128-9.

The 1929 balance-of-payments crisis had shaken the foundation of the Hungarian currency. Table 2.4 shows how significant the depletion of HNB reserves was in 1929 when the net inflow of private capital was almost non-existent. Strictly from a monetary point of view, the 1929 crisis was comparable to the one in 1931: 29 per cent less HNB reserves were sacrificed in 1929 and the net inflow if private capital was the same in the two years. After this early crisis event, the HNB's

¹⁵¹ *ANB Mitteilungen*, 1926-33.

¹⁵² HNA, file Z6, box (in Hungarian: doboz) 2, 28 Nov. 1928; 26 June 1929.

¹⁵³ HNA, file Z6, box 2, 22 May 1929.

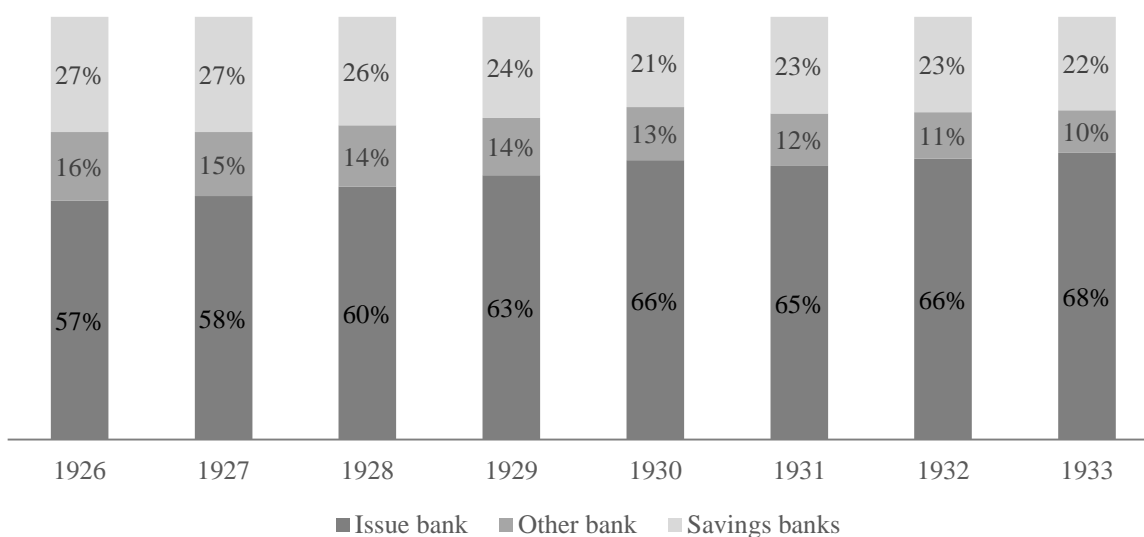
¹⁵⁴ HNA, file Z6, box 2, 30 Aug. 1929.

reserves amounted to less than three per cent of the country's national product, while the same for the Austrian National Bank was closer to eight-nine per cent in 1930.¹⁵⁵ Although reserves were stable in the aftermath of the early crisis, banknotes in circulation were kept under control by the restrictive HNB, and net private capital inflows improved in 1930, even a minor volatility could undermine the stable but very fragile Hungarian currency.

PRE-CRISIS BANKING SYSTEM WEAKNESS

Turning to the financial system, Figure 2.4 depicts the structure of the Hungarian banking sector by total assets. Issue banks were the largest players at the aggregate level, accounting for approximately 60 per cent of the total assets, rising to over two-thirds towards the end of the period under investigation. Since there were only 19-20 issue banks, they were large individually as well.

Figure 2.4 The structure of the Hungarian banking system by total assets^{a)}



Note: a) Joint-stock banks and savings banks. Credit cooperatives are excluded.

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

The second largest players at the aggregate level were savings banks, which made up approximately 20-25 per cent of the system's total assets but this ratio was declining over the years.

¹⁵⁵ Hungarian figures calculated based on *REA*, 1. 1929, pp. 14-5; *REA*, 6. 1930, p. 10; *REA*, 11. 1931, p. 27; *REA*, 14. 1932, p. 18; Eckstein, *National income*, Table 1, p. 14; James, 'Financial flows', p. 608. Austrian figures calculated based on *ANB Mitteilungen*, 1926-33; Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen'.

Savings banks fulfilled banking functions, were located mostly in the countryside, and they were predominantly agricultural lenders. The database includes the financial accounts of some 300 savings banks implying that whereas they were significant at the aggregate level, they were largely small institutions. The same applies to other banks: there were around 200 of them and they made up approximately 15 per cent of the total assets of the whole system.

The economic and monetary stabilization which was brought about by the League of Nations reconstruction scheme had a great impact on the financial system. Table 2.5 shows that whereas in 1926 there were 947 institutions (both going concerns and those in distress) recorded in the *Hungarian Compass*, by 1930 there were only 567 such entities. That is, in terms of the number of institutions, in 1930 the financial system was at 60 per cent of the 1926 level. Total assets on the other hand increased enormously. As the economy and along with it, the financial system stabilized, people were returning to banks and banks could start lending again. Total assets in 1930 were 231 per cent of those in 1926. The years before the 1931 crisis thus saw a period of consolidation and high levels of growth in the banking sector.

Table 2.5 Growth and consolidation in the banking sector

		No. of institutions	No. of failures	No. of institutions as a % of 1926	Change in total assets	Total assets as a % of 1926
1926	Total	947		100%		100%
1930	Issue banks		-4		2.7x	
vs.	Other banks		-267		1.8x	
1926	Savings banks		-109		1.9x	
	Total		-380		2.3x	
	Total	567		60%		231%
1933	Issue banks		1		0.9x	
vs.	Other banks		-40		0.7x	
1930	Savings banks		-48		0.8x	
	Total		-87		0.8x	
	Total	480		51%		195%

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

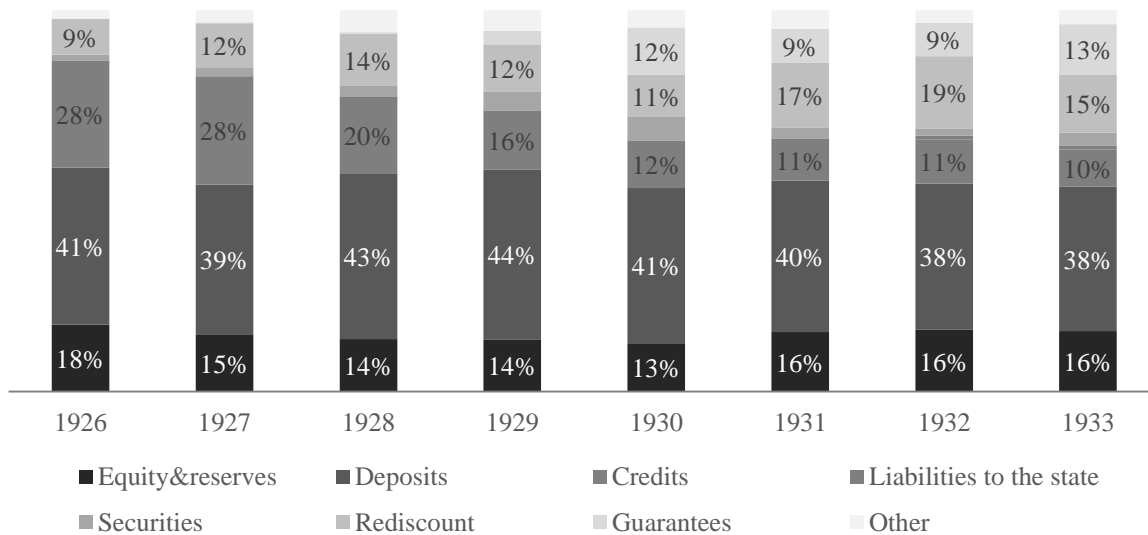
The literature has pinpointed three factors that contributed to the Hungarian financial sector's weakness and thereby its crisis in 1931: the banking system's inability to recover from the years of hyperinflation in the early 1920s, its excessive short-term foreign indebtedness, and non-

performing industrial loans.¹⁵⁶ The first two of these refer to equity and liability side issues while the third blames banks' asset side. The next paragraphs review both in turn.

Equity and liability side

Figure 2.5 presents the equity and liability side of the Hungarian financial system's aggregate balance sheet. The diagram shows that Hungarian banks financed themselves from four main sources: equity, deposits, short-term credits, and the rediscount provided by the central bank or other financial institutions.

Figure 2.5 The equity and liability side of the banking system's aggregate balance sheet



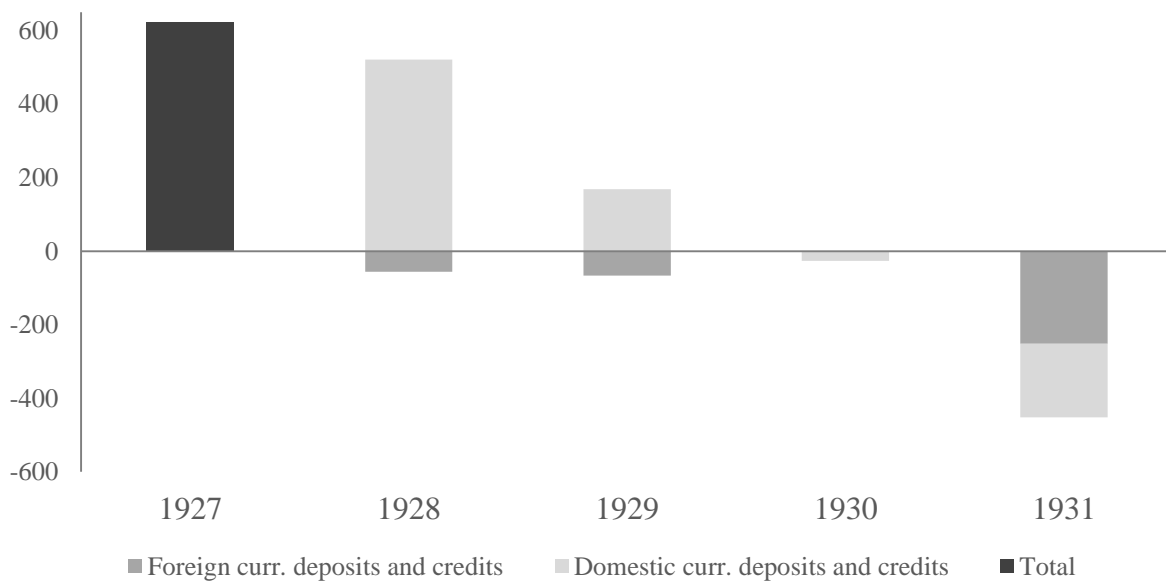
Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

For the analysis of the foreign currency exposure, only depositors and creditors are relevant because only these were both short-term and potentially foreign currency denominated items. Even though some Hungarian banks did have foreign owners who may have placed their equity into Hungarian banks in foreign currency, equity is a source of long-term financing that cannot be immediately retrieved from an entity. The rediscount on the other hand was denominated in domestic currency. Therefore, to understand how much foreign currency capital was withdrawn and whether this increased the vulnerability of the banking system, the analysis must focus on depositors and creditors.

¹⁵⁶ Pogány, 'Financial crises', p. 18.

Figure 2.6 depicts the annual change in aggregate deposits and credits. The figures show that these two sources of financing were increasing significantly between 1927 and 1929. In these three years the change from the previous year was 41, 22, and 4 per cent, respectively. The figures for 1927 and 1928 underscore the findings of Table 2.5 earlier: as the banking sector was re-established after the war and the years of hyperinflation, depositors' and creditors' confidence was also rebuilt towards financial institutions, and this fuelled the enormous growth of the sector.

Figure 2.6 The annual change in foreign and domestic currency deposits and credits (million pengő)



Note: Foreign and domestic currency cannot be disentangled for 1927.

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5; *SR*, 9. 1931; *SR*, 8. 1932; *SR*, 9. 1933; *REA*, 2. 1929, pp. 24-5; *REA*, 6. 1930, pp. 16-7; *REA*, 14. 1932, pp. 24-6.

Figure 2.6 also differentiates between foreign and domestic currency deposits and credits where data availability allows. Since financial institutions did not individually report their foreign currency exposure and even aggregate figures have limitations, in order to disentangle the share of foreign currency deposits and credits, a number of assumptions had to be applied. Foreign currency deposits were reported by *REA* for 1929-33 but only as aggregates for the 12 (later 11) largest Budapest institutions, the 35 (later 34) largest non-Budapest institutions, and the Postal Savings Bank. I have assumed that no other financial institution had deposits denominated in foreign

currency and all remaining deposits were in domestic currency.¹⁵⁷ A further challenge is that there is no information available on the currency denomination of short-term creditors. Therefore, it has been assumed that all credits of issue banks (the largest institutions) were denominated in foreign currency, while other banks and savings banks did not have foreign currency creditors.¹⁵⁸ To ensure that figures are robust despite the described data limitations, they have also been checked against the capital account figures of the country's annual balance-of-payments.

The results indicate that from 1928, foreign currency denominated capital was flowing out of the Hungarian banking system but its volume was insignificant until 1931. Foreign currency credits and deposits declined in 1928 and 1929 at a volume, which was approximately 1.4 and 1.5 per cent of the total assets of the system, respectively. The decline in 1928 and 1929 was more than offset by the increase in domestic currency capital in those years. Then in 1930 there was no change and foreign currency financiers only renewed their flight in 1931. The 251 million pengős of foreign currency denominated capital that left the banking system in 1931 was approximately 5.7 per cent of total assets in 1930. It thus appears that until 1930, the banking system enjoyed high levels of liquidity and very low levels of foreign currency-based capital flight before 1931.

Based only on the assessment of the equity and liability side of the balance sheet, one could thus easily conclude that the Hungarian banking system was healthy and it only fell victim to the problems of the currency in 1931. The analysis of the asset side, however, reveals that this would be a hasty assessment to make.

Asset side

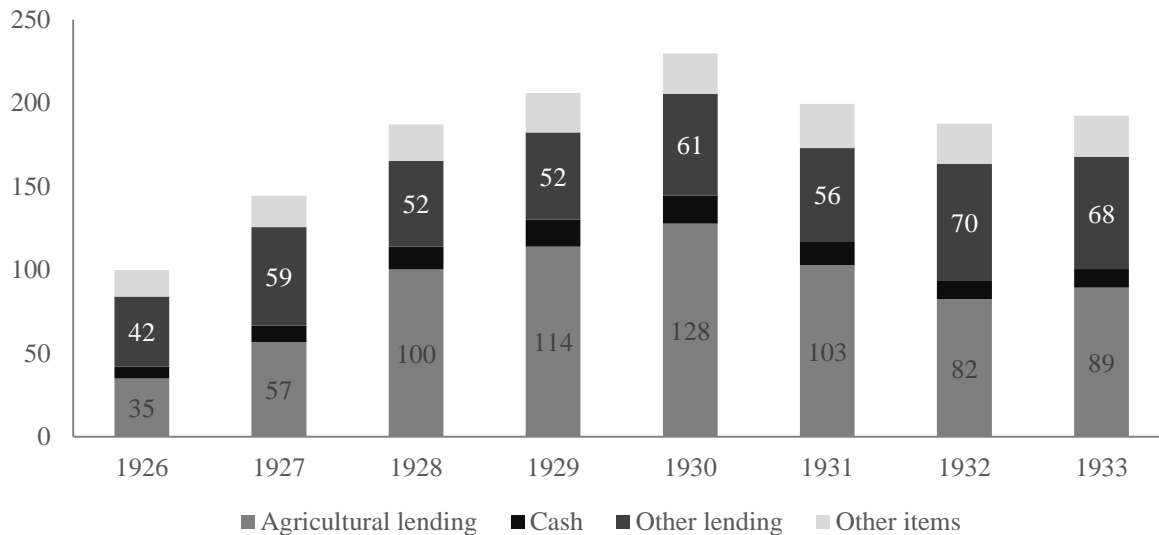
Figure 2.7 presents the asset side of the Hungarian financial system's aggregate balance sheet. The figures show that the enormous deposit growth that the banking sector experienced between 1926 and 1930 was predominantly channelled into agricultural lending. Whereas other lending increased by 50 per cent, loans to agriculture increased more than threefold. Although the data are not disaggregated to such detail, it can be safely assumed that almost all of these loans were placed

¹⁵⁷ This assumption might underestimate the volume of foreign currency deposits since there may have been other institutions which were relying on such a financing source. On the other hand, this underestimation is presumably of low significance because, arguably, only the largest institutions were involved in businesses based on foreign currency and thus my data likely includes the dominant majority of foreign currency deposits.

¹⁵⁸ This assumption may overestimate foreign currency creditors since while it is unlikely that small other banks and savings banks had any foreign currency creditors, it is also unlikely that all credits of the large banks were in foreign currency.

domestically. After the war, even the largest Hungarian banks became much less international as their assets in the neighbouring Successor States suffered confiscation and dissolution.¹⁵⁹ Other asset items remained largely stable during the period.

Figure 2.7 The asset side of the financial system's aggregate balance sheet (1926=100)



Notes: Other items include trade in securities and commodities, interests, fixed assets, and other.

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

Hungary was a heavily agricultural economy in the interwar period: agriculture accounted for the dominant part of the national income and this sector was the main employer with 58 per cent of the labour force working here.¹⁶⁰ The health of the real economy was hence largely dependent on two factors: the harvest and agricultural prices. The production of the main agricultural goods was relatively stable around 20 million quintals for wheat and 17 million quintals for corn from 1924/5 through 1929/30.¹⁶¹ Prices, however, were continuously declining. The domestic wholesale price of wheat was 32.85, 31.7, 25.38, 24.6, and 14.03 pengős per quintal for 31 January from 1927 through 1931, respectively.¹⁶² As lending to agriculture was rising, banks became increasingly exposed to a sector of the economy whose profitability was shrinking.

¹⁵⁹ Ránki and Tomaszewski, 'The role of the state', pp. 7-8.

¹⁶⁰ LoNSY, 1927. National income based on Eckstein, *National income*, Table 1, p. 14.

¹⁶¹ MSR, XXXI, 1-3, 1928, p. 114; MSR, XXXII, 10-12, 1929, p. 693; MSR, XXXIV, 1-3, 4-6, 1931, p. 222.

¹⁶² Price of wheat from the Tisza region (78 kg) per quintal. MSR, XXX, 1-3, 1927, p. 107; MSR, XXXI, 1-3, 1928, p. 109; MSR, XXXII, 1-3, 1929, p. 111; MSR, XXXIII, 1-3, 1930, p. 101; MSR, XXXIV, 1-3, 1931, p. 91.

There is abundant indirect evidence that the financial sector was influenced by declining agricultural profit margins through an increase in non-performing loans (NPLs). For instance, the number of insolvencies rose from 1,097 to 1,580, 2,226, and 2,472 from 1927 to 1930, respectively.¹⁶³ A contemporary source also estimated that in 1930 at least 25 per cent of all agricultural loans were in default.¹⁶⁴ Further, the General Council of the HNB had been discussing the financial system's NPLs in agriculture from late 1928 and in 1930 they put the volume of delinquent agricultural loans which were funded through debentures at 70-75 per cent.¹⁶⁵ Finally, from early 1930, newspapers also started reporting about loan defaults.¹⁶⁶

However, direct evidence on the volume of NPLs is unavailable. Financial institutions did not account for degrading loan quality in their books and even though a loan was delinquent, it still remained on banks' balance sheets at par value. NPLs were thus unreported. There is, nonetheless, a method through which it is possible to produce a close approximation of the proportion of banks' NPLs. The key insight in this approach is that the change in banks' net interest margin to their total lending indicator (NIM/TL) can be used as a proxy for loans in delay or in default.¹⁶⁷

The year on year change of the NIM/TL ratio may be the result of three drivers. First, the changing interest levels of the general economy could influence the interest earned by banks. Nonetheless, since the indicator uses interest margin, i.e. the spread between revenues and expenses, the impact of this factor should be negligible. At the same time, a scenario is conceivable when for instance, interest rates generally decline in the economy and banks cannot fully pass on a rate reduction to their depositors but are forced to immediately reduce the interest on their borrowers. However, in such a case, the key driver is not declining overall interest levels, rather the second factor, changes in the market structure and competition. A fragmented market could reduce interest margins in the whole sector. Nevertheless, all available metrics point towards the opposite in the case under observation. The number of banks was declining during the period, total assets in 1930 were 2.3 times those of 1926 (Table 2.5), and the Herfindahl-Hirschmann index indicates stagnating or declining competition for the critical years of this analysis.¹⁶⁸ These details

¹⁶³ Based on *REA*, 14. 1932, p. 38.

¹⁶⁴ Surányi-Unger, *Magyar nemzetgazdaság*, pp. 268-70.

¹⁶⁵ HNA, file Z6, box 1, 30 Oct. 1928; 26 June 1929; 30 April 1930; 18 June 1930; 19 Dec. 1930; discussion on the volume of delinquent loans: 8 Jan. 1930.

¹⁶⁶ *HF*, issues dated 7 Jan. 1930 and 14 Jan. 1930.

¹⁶⁷ The net interest margin is the difference between a bank's interest revenues and interest expenses. This is then divided by the given bank's total lending to arrive at the net interest margin to total lending ratio.

¹⁶⁸ In the Herfindahl-Hirschmann index I calculated market share based on total lending.

suggest that competition for clients was not intensifying in the sector and hence it could not have been the reason for any fall in margins. Finally, the third factor that could explain changes in the net interest margin to lending is the increasing proportion of loans in delay or in default. Delinquencies reduce banks' interest revenues and decrease their net interest margin. While the first two possible drivers do not explain what occurred in the examined period, this third factor is in line with contemporary general observations about loan quality. Therefore, I use the observed decline in the net interest margin as a proxy for estimating the volume of NPLs.

Table 2.6 Non-performing loan (NPL) calculation for all financial institutions

Year	Total				Issue banks			
	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity
1926	3.8%				3.4%			
1927	2.9%	-24.3%	24%	122%	2.6%	-24.8%	25%	116%
1928	2.9%	-0.7%	19%	105%	2.6%	2.1%	17%	86%
1929	2.8%	-1.2%	18%	77%	2.5%	-5.7%	20%	74%
1930	2.4%	-14.9%	30%	88%	2.0%	-20.1%	36%	94%
1931	2.5%	4.7%	32%	98%	2.2%	10.9%	34%	84%
1932	2.2%	-14.2%	47%	175%	2.0%	-8.0%	43%	129%
1933	1.8%	-16.6%	61%	224%	1.6%	-18.5%	58%	179%
Year	Other banks				Savings banks			
	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity
1926	4.6%				4.9%			
1927	3.7%	-19.2%	19%	102%	3.6%	-25.0%	25%	172%
1928	3.6%	-3.6%	19%	110%	3.4%	-5.8%	25%	185%
1929	4.1%	13.8%	4%	22%	3.7%	7.7%	16%	113%
1930	3.7%	-8.9%	13%	59%	3.8%	3.8%	11%	81%
1931	3.5%	-7.8%	22%	102%	3.5%	-9.4%	21%	141%
1932	2.8%	-20.2%	46%	190%	2.6%	-26.0%	49%	307%
1933	2.6%	-5.9%	52%	209%	2.2%	-12.7%	63%	382%

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

Table 2.6 presents the results of the NIM/TL calculation. The data illustrate that as early as 1927, financial institutions saw their NIM/TL decline from the previous year by 24.3 per cent. This implies that during this year, the quality of banks' loan portfolio substantially worsened. The situation was most detrimental at issue banks with a NIM/TL decline of 24.8 per cent, but other banks, the best performers along this metric, also saw their NIM/TL fall by 19.2 per cent from the

previous year. The NIM/TL of the whole sector continued to decline between 1928 and 1930 by 0.7 per cent, 1.2 per cent, and 14.9 per cent between 1928 and 1930, respectively. The NIM/TL improvement of 4.7 per cent in 1931 indicates the post-crisis clean-up of issue banks' balance sheets: by the end of 1931, issue banks' lending had declined by approximately 30 per cent which suggests a substantial write-off of NPLs. Other banks and savings banks saw the continued deterioration of their loan portfolio in 1931. Then 1932 and 1933 saw further significant declines in the NIM/TL ratio.

The annual declines in NIM/TL already indicate that - assuming that the structure of the market was not unfavourable to interest margins - banks were struggling under an increasing volume of NPLs. They were receiving less and less interest from their borrowers due to the latter's defaults and, at the same time, they still had to pay interest on their own financing. Moreover, these results are very likely to be positively biased as the database only includes the healthiest banks. The reason for this is that banks that had gone bankrupt or were liquidated simply dropped out of the database, and weak banks tended not to report any financials or only their balance sheet. Further, since only those banks have been included in the analysis which provided their accounts for all of the years under observation, the NIM/TL calculation works with the top-performing 203 financial institutions. Declining NIM/TL ratios in Table 2.6 thus imply that even the strongest entities were facing a serious profitability decline from 1927 due to NPLs.

The change in NIM/TL can be made further use of and can also be applied for making an estimate of the volume of NPLs. Table A2.2 in the Appendix explains the simple theoretical approach which is in the background of this analysis. The NPL/lending column in Table 2.6 uses this approach to calculate the non-performing loan portfolio of the banking sector. The figures reveal that between 1927 and 1930, the proportion of the loan portfolio that was in some level of default, increased from 24 per cent to 30 per cent. The situation was the worst at issue banks with 36 per cent of their lending delinquent in 1930, rising from 25 per cent in 1927. Table 2.6 also calculates the loss of capital that these defaults gave rise to. In 1930, approximately 88 per cent of the financial sector's equity was lost through non-performing loans. In 1927, the figure was even worse, 122 per cent. Since NPL/lending was increasing, the decline in NPL/equity suggests that in the late 1920s the banking sector's capitalization improved. Issue banks were in the biggest trouble with approximately 94 per cent of their equity lost by 1930. A pre-post analysis also reveals that the more NPLs a bank had in 1930, the bigger losses it suffered to its creditors and the higher

capital increase it had to implement in 1931, at a correlation coefficient of 0.43 and 0.84, respectively. This confirms that the volume of NPLs was an essential driver of bank distress in 1931. While these NPL figures are only estimates, they illustrate the extremely fragile, very likely insolvent state of the Hungarian banking sector already from 1927.

Table 2.7 Non-performing loan (NPL) calculation for institutions with agricultural lending over 75 per cent

Year	Panel 1				Panel 2			
	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity	NIM/TL	Change in NIM/TL	NPL/ lending	NPL/ equity
1926	4.0%				1.9%			
1927	3.0%	-25.7%	26%	170%	1.2%	-35.5%	36%	362%
1928	3.1%	3.2%	17%	107%	1.4%	15.3%	12%	86%
1929	2.1%	-33.5%	46%	266%	-0.6%	-145.3%	a)	a)
1930	1.6%	-20.9%	55%	239%	-0.3%	-45.7%		
1931	2.2%	35.1%	36%	99%	0.6%	-273.3%		
1932	1.9%	-16.0%	52%	222%	1.0%	72.2%		
1933	1.3%	-31.6%	75%	336%	0.5%	-48.8%		

Note: a) Calculations cannot be carried out due to negative NIM/TL ratio in 1929 and 1930.

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

Panel 1 of Table 2.7 carries out the same analyses but restricts the sample to those financial institutions whose agricultural loans accounted for over 75 per cent of their total lending. The results reveal the detrimental impact of banks' increasing agricultural exposure. In 1927, already 170 per cent of these heavily agricultural banks' equity was lost to NPLs whereas the same figure for the whole sample was 'only' 122 per cent. In 1929 and 1930, NPLs further increased and by the end of 1930, 55 per cent of the portfolio was non-performing, which amounted to a loss of 239 per cent of the equity of these financial institutions. The same figures for the whole sample were significantly lower at 30 per cent and 88 per cent, respectively.

The sub-sample of the heavily agricultural banks is dominated by two financial institutions: the Magyar földhitelintézetek országos szövetsége¹⁶⁹ and the Magyar földhitelintézet.¹⁷⁰ These two banks account for over 50 per cent of the total lending of the agricultural sub-sample. The remaining approximately 45 per cent of the sample is highly fragmented. The lending performance

¹⁶⁹ In English: National Association of Hungarian Land Credit Institutions.

¹⁷⁰ In English: Hungarian Land Credit Institute.

of the two large agricultural creditors is depicted in Panel 2 of Table 2.7. The loan portfolio of these two banks was extremely weak. Between 1926 and 1928 their NIM/TL was still positive but declining and was less than half of that of the entire agricultural sub-sample. In 1929 and 1930 their NIM/TL ratio turned negative implying that they were losing money on their core activity and were in need of support to finance their operational expenses.

The above analyses confirm that the Hungarian banking sector at the aggregate level, and especially those banks whose agricultural exposure was high, was very likely insolvent as early as 1927. The reason why the insolvency did not turn into a general banking crisis in 1927 was that until 1930 banks enjoyed a high and steady inflow of deposits and credits. This was also the reason why the significant cut in the HNB's rediscount in the aftermath of the 1929 currency crisis did not create problems for the banks. The liquidity was able to hide the fact that non-performing loans were on the rise on banks' balance sheets.

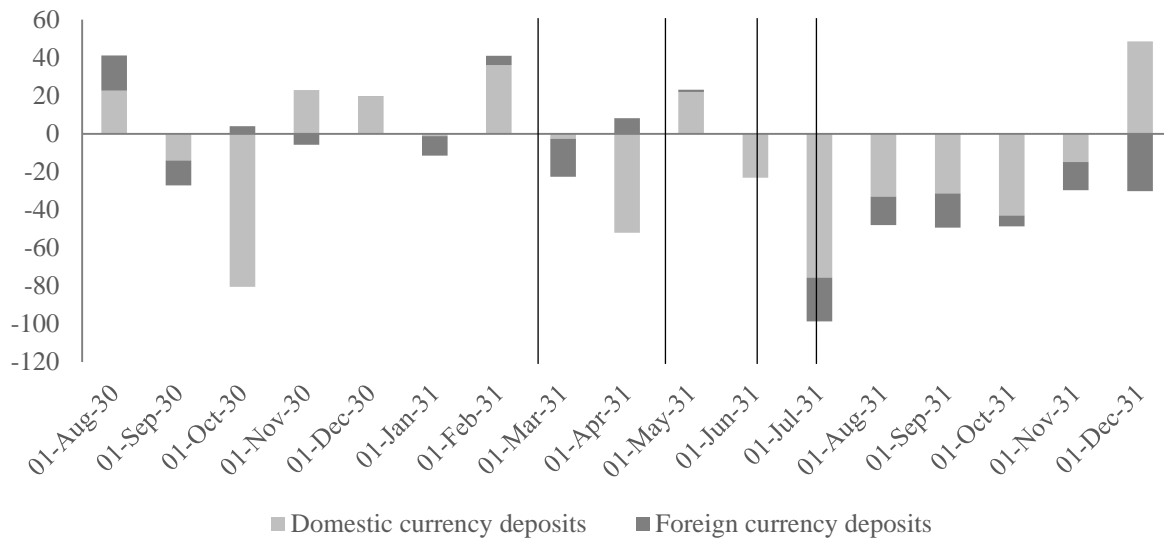
EVENT ANALYSIS

The currency and the banking system were both vulnerable as early as 1929 and 1927, respectively. The great crisis, however, only erupted in 1931. To understand the exact timing and the trigger of the crisis, the following paragraphs analyse banking and currency pressures in more detail before and during the crisis, using high frequency data distilled into three indicators. My proxy for banks' equity and liability side problems is the monthly change in foreign and domestic currency deposits (Figure 2.8). Unfortunately, monthly data are not available for short-term credits but their annual change will be used as a reference. My reference for banks' asset side position is the rediscount provided by the HNB to the financial system (Figure 2.10). Finally, my proxy for the stability of the currency is the change in the reserves of the HNB (Figure 2.9). To increase the level of detail, I divided up the crisis into five periods as indicated on Table 2.8. For each period I am tracing banking and currency events through my three indicators.

Figure 2.8 shows that the volatility of the banking system's short-term liabilities already started in October 1930 as domestic deposits declined significantly. This signifies the first period of the crisis and it had been triggered by a speech by Prime Minister Bethlen. Afterwards, rumours started circulating that the government would confiscate deposits from financial institutions and

invest them in the economy.¹⁷¹ As a result of these events, approximately 94 million pengős of domestic deposits left the banking system in September and October (Table 2.8).

Figure 2.8 The monthly change in foreign and domestic currency deposits (million pengő)



Source: REA, 2. 1929, pp. 24-5; REA, 6. 1930, pp. 16-7; REA, 14. 1932, pp. 24-6.

It is unlikely that these deposits were converted into foreign currency since, as Table 2.8 shows, during the same period the HNB's reserves decreased only by 13 million pengős. This change in reserves seems to have followed the normal course of the economy as reserves experienced similar minor declines during the same weeks in previous years only to climb back to higher levels by the end of the year. This suggests that depositors were withdrawing their money due to their fear of a banking crisis rather than due to their fear of currency devaluation, making the change in deposits a banking rather than a currency event. As such, the event was probably unrelated to Germany's Reichstag elections in September because that would have been ensued by not only domestic deposit withdrawals but by conversions as well.¹⁷² The panic was not permanent and, as Figure 2.8 shows, what had left the financial system in September and October gradually returned in the subsequent months.

¹⁷¹ HF, 15 Oct. 1930; 29 Oct. 1930; 28 Jan. 1931.

¹⁷² It has been suggested by contemporaries that the reason for the flight may have been the Germany election. BoEA, file OV33/79, Data sent by Jakabb to Jacobsson, 25 March 1931, p. 8.

Table 2.8 Trigger analysis (million pengő)

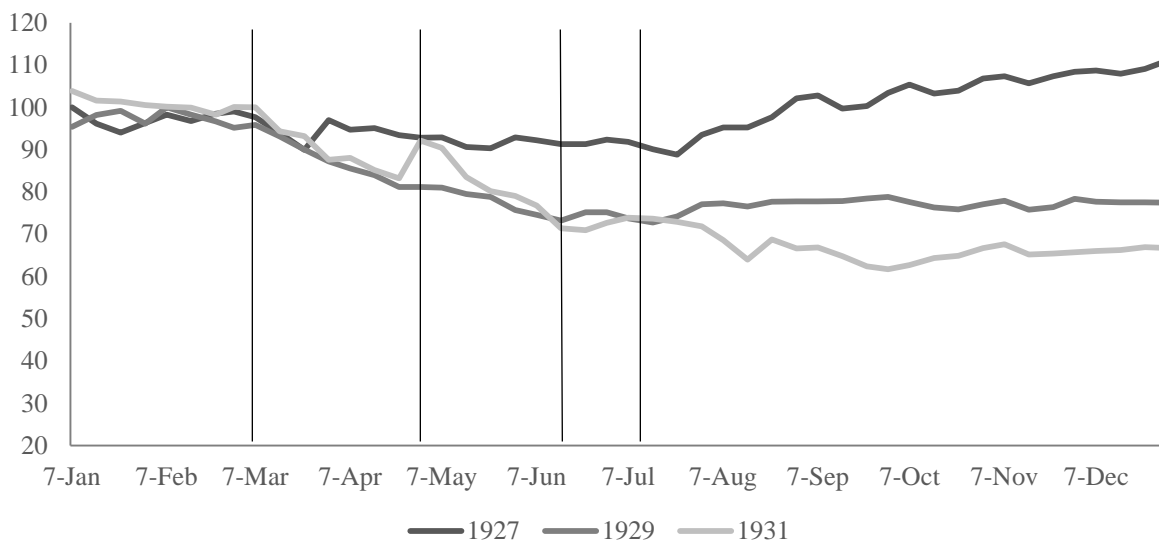
	Beginning of period (BoP)	End of period (EoP)	Type of event				
Period 1	Sep 1930	Oct 1930	Banking				
Period 2	7 Mar 1931	30 Apr 1931	Banking & currency				
Period 3	30 Apr 1931	15 Jun 1931	Banking & currency				
Period 4	15 Jun 1931	15 Jul 1931	Banking & currency				
Period 5	15 Jul 1931	31 Dec 1931	Banking & currency				
Reserves of the central bank							
	Beginning of period (BoP)	End of period (EoP)	Reserves BoP	Reserves EoP	Change	Int'l support	Change without int'l support
Period 1	Sep 1930	Oct 1930	198	185	-13		-13
Period 2	7 Mar 1931	30 Apr 1931	188	173	-15		-15
Period 3	30 Apr 1931	15 Jun 1931	173	134	-39	77	-116
Period 4	15 Jun 1931	15 Jul 1931	134	138	4	100	-95
Period 5	15 Jul 1931	31 Dec 1931	138	125	-13		-13
Short-term liabilities of the banking system							
	Beginning of period (BoP)	End of period (EoP)	Change in foreign curr. deposits	Change in foreign curr. credits - estimate	Change in domestic curr. deposits	Change in domestic curr. credits - estimate	
Period 1	Sep 1930	Oct 1930	-9		-94		
Period 2	7 Mar 1931	30 Apr 1931	-12		-55		
Period 3 ^{a)}	30 Apr 1931	15 Jun 1931	1	-101	-1	-15	
Period 4 ^{b)}	15 Jun 1931	15 Jul 1931	-23	-28	-75		
Period 5 ^{c)}	15 Jul 1931	31 Dec 1931	-84		-73		

Note: a) May-June figures for bank deposits; b) July figures for bank deposits; c) Aug figures for bank deposits.

Source, HNA, file Z12, bonds 128-9; SR, 9. 1931; SR, 8. 1932; SR, 9. 1933; REA, 2. 1929, pp. 24-5; 6. REA, 1930, pp. 16-7; REA, 14. 1932, pp. 24-6.

Then during what Table 2.8 refers to as the second period of the crisis, banks experienced renewed volatility. In March 1931, foreign currency deposits started leaving the banking system and only some of them returned in April (Figure 2.8). The net impact of the foreign currency deposit flight was negative 12 million pengős.

Figure 2.9 The reserves of the Hungarian National Bank (100 = 7 Jan. 1927, 7 Feb. 1929, 7 March 1931)



Source: HNA, file Z12, bonds 128-9.

The same volatility can be traced through the HNB's reserves. As Table 2.8 shows, a drop of a similar magnitude, 15 million pengős, can be identified in the reserves of the central bank. Figure 2.9 shows the changes in the HNB's metallic reserves for 1927, 1929, and 1931. To make the reserve levels of the three years comparable, Figure 2.9 relies on index numbers.¹⁷³ The year 1927 is used as a benchmark here in order to illustrate how central bank reserves evolved in a period, which was free of currency problems. The 1929 and 1931 curves are both burdened with the weight of a currency crisis. In the early days of March, the 1931 curve closely follows that of 1929 as reserve levels steeply declined. However, towards the end of the period, in late April, the 1931 curve climbs back and becomes aligned with the no-crisis curve of 1927. The drop in March

¹⁷³ The reference level for the 1927 curve is 7 Jan. 1927. The same for the 1929 and 1931 curves is the start of the crisis which is the date when reserves started to undergo a decline. For 1929 this was 7 Feb. for 1931 it was 7 March in 1931.

and the rise in April are very similar to the pattern that foreign currency deposits followed on Figure 2.8.

What was the driver of the anxious foreign currency denominated capital volatility in March and April? A significant event that occurred during this period was the proposal of a potential customs union between Austria and Germany.¹⁷⁴ However, since the Austrian National Bank's reserves reacted to this circumstance with an increase,¹⁷⁵ it would be difficult to explain why the reserves of Hungary, a country that was only impacted indirectly, should behave in the opposite way. What I believe may provide an explanation to the behaviour of the HNB's reserves is the Jacobsson visit and report. Jacobsson arrived to Budapest on 23 Mar and submitted his report on 4 April. The moves of the reserves seem to follow the events of his mission and the subsequent change in perception. During March, as financiers learnt about Hungary's potential budgetary difficulties, they became doubtful and sent an envoy to investigate matter. During these days, foreign currency deposits declined as rumours were probably spreading in the tight-knit circle of financiers that there may be problems with Hungary's state finances. However, when in early April Jacobsson confirmed that Hungary's case was manageable and the government was willing to make decisive steps, both deposits and reserves climbed back. Should this be the correct interpretation, it would imply that during this period of the crisis Hungary was experiencing a mild and temporary pressure on its currency which dissipated by the end of the period.

In addition, this second period of the crisis also saw volatility in the banking system as domestic currency depositors started a short flight during April. The withdrawals were out of the ordinary but somewhat lower in volume than the drop in late 1930 (Figure 2.8). Unfortunately, I do not have an obvious explanation to this volatility. I can only conclude that the decline was not followed by the change in reserves, that is, domestic currency was not converted into foreign currency. This implies depositors' fear for banking rather than currency stability.

In the second period of the crisis, from 7 March to 30 April, thus both banking and currency problems came to the surface but only to a limited extent. The third period, however, which covers the time of the Credit-Anstalt crisis in Austria, amplified both. In the weeks between 30 April and 15 June, as Figure 2.9 shows, the central bank's reserves were continuously declining. The curve of 1931 is closely aligned with the curve of 1929, indicating that the two crises evolved along a

¹⁷⁴ HNA, file Z12, box 2, 27 March 1931.

¹⁷⁵ ANB *Mitteilungen*, 1926-33.

similar path. Table 2.8 has the absolute figure: the net change in reserves was 39 million pengős. However, it should be taken into consideration that in these weeks, the Hungarian central bank received support from a number of sources and did not report the impact of these credits in its official reserves. The Bank for International Settlements and the Reichsbank lent a total of 10 million US dollars and 700 thousand pound sterling to the HNB.¹⁷⁶ When the foreign capital inflow from these sources is taken into consideration, then the actual reserve loss of the HNB comes to 116 million pengős during this third period of the crisis. This figure was approximately 58 per cent of the total reserves of the HNB at the beginning of the year, which demonstrates the shocking extent of the withdrawals.

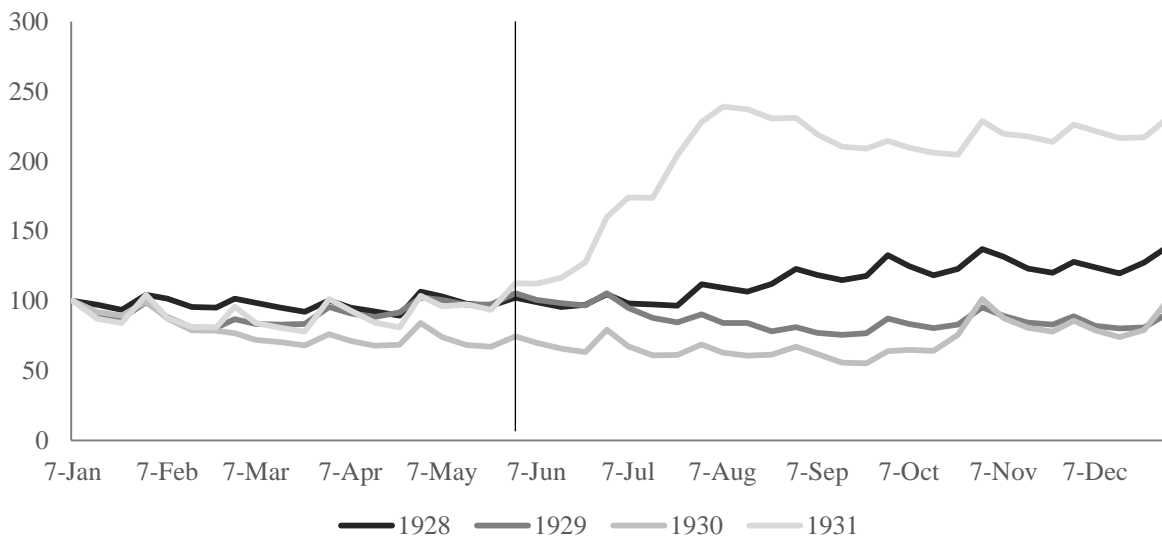
Even though this money had to somehow pass out from the banking system, unfortunately, it is not detectable on Figure 2.8. The likely reason is that Figure 2.8 only shows the change in depositors but does not include creditors since monthly data are unavailable for the latter. What we do know from annual figures is that for 1931 the net change in foreign and domestic currency creditors was –129 and –15 million pengős, respectively (Figure 2.6). To account for the change in reserves, this creditor flight, at least partially, must have occurred during this third period of the crisis. Table 2.8 assumes that all of the 15 million pengős of domestic currency and 101 of the 129 million pengős of foreign currency creditors left the banking system during this period. These can account for the 116 million pengő decline of the HNB's reserves during these weeks.

The flight of capital in the months of the Credit-Anstalt crisis was predominantly driven by banking fears but currency fears may have also been present. Since the 101 million pengős of credits were denominated in foreign currency, these investors did not have to fear devaluation. Their flight can thus be explained on the one hand by their fear that just as the Credit-Anstalt, Hungarian banks would also fall. On the other hand, they may have been concerned that just as Austria, the Hungarian government would also have to organize a bailout for its banking system, become bankrupt itself, collapse, and may even default on its loans or introduce capital controls. Further, if, as assumed, the 15 million pengős of domestic currency deposit were converted into foreign currency, this would suggest that devaluation may also have been among investors' fears. That is, the flight of capital in May through 15 June was likely driven by anxiety mostly about the banking sector but also somewhat about the currency.

¹⁷⁶ BoEA, file C40/171, Credits for the National Bank of Hungary, 14 July 1931.

In the fourth period of the crisis from 15 June until 15 July both currency and banking problems persisted. The HNB received an additional 16 million US dollar and 300 thousand pound sterling credit through the Bank for International Settlements.¹⁷⁷ The total decline in central bank reserves amounted to 95 million pengős in these days. The 51 million pengős of foreign currency deposits and credits withdrawn indicate fears for the banking system. The remaining 44 million pengős of reserve change indicate that the domestic currency depositors of 75 million pengős were converting their money into foreign currency because of their fears about the stability of the pengő.

Figure 2.10 Rediscount (100 = 7 January for each year)



Source: HNA, file Z12, bonds 128-9.

The weeks between 15 June and 15 July can also be characterized by severely deepening banking problems. As Figure 2.10 shows, the financial system's use of the central bank's rediscount started to steeply rise from early June. Figure 2.10 depicts the rediscount through index numbers for the years of 1928, 1929, 1930, and 1931 where the reference points are 7 January for each year. While the curves of 1928, 1929, and 1930 follow the same trend, the slope of 1931 becomes very different from the rest from early June, and embarks on a steep increase until mid-August when it stabilizes. The financial system's demand for increased rediscount suggests that banks had serious liquidity problems. The HNB could have responded to this with restrictive

¹⁷⁷ BoEA, file C40/171, Credits for the National Bank of Hungary, 14 July 1931; The Second Central Bank Credit, 14 Aug. 1931.

measures as it did after the early currency crisis in 1929. The fact that it chose a different course, despite having seen its reserves haemorrhage just days earlier, underlines that there were serious problems in the banking system.

The very period when banks' demand for rediscount more than doubled was the time of the wheat harvest. It appears that the harvest of 1931 led to a series of defaults. The global price of wheat depicted on Figure 2.2 dropped from 82.6 cents on 31 May to 52.8 cents per bushel on 31 July; a decline of 36 per cent within just two months. Previous years' same figures do not suggest that such a high post-harvest price decline was normal. Domestic wheat prices followed a similar course and fell from 14.78 to 11.08 pengős per quintal.¹⁷⁸ This implies that the sudden and sharp decline of agricultural prices immediately made a large number of agricultural borrowers insolvent. As borrowers defaulted on their loans, Hungarian banks did not receive their expected income, became insolvent and illiquid themselves, and turned to the HNB for support.

Authorities responded to the fourth period's banking shock by introducing a number of radical crisis management measures. The fifth period of the crisis hence started with a three-day bank holiday from 14 July, and when banks opened on 17 July, their depositors had to face serious restrictions on withdrawals. On 17 July, capital controls were also introduced. However, instead of achieving stability, these measures actually worsened the situation. In the fifth period of the crisis, the flight of foreign and domestic currency deposits became continuous (Figure 2.8), reserves started to decline again (Figure 2.9), and the rediscount continued to rise for a few more weeks (Figure 2.10). Until the end of the year, the country was struggling with the weakness of its banking and monetary systems, simultaneously.

Hungary's crisis thus emerged in the banking system and banking and currency problems became gradually interconnected. The currency, despite the enormous reserve losses, seems to have been stabilized by the international loans. Nonetheless, this stability was undermined as the banking crisis further deepened between 15 June and 15 July. The steep rise in the rediscount was the last nail in the coffin of the Hungarian currency and the country became entangled in a severe twin crisis.

¹⁷⁸ Price of wheat from the Tisza region (78 kg) per quintal. *MSR*, XXXIV, 4-6, 1931, p. 217; 7-9, 1931, p. 401.

MISSING THE WOOD FOR THE TREES

This chapter has shown that just as Germany, Hungary also experienced a twin crisis in 1931. It has demonstrated that the Hungarian currency and the banking system were both vulnerable due to events and conditions that occurred several years before 1931, and in the weeks of the crisis, currency and banking problems were super-imposed on one another.

The evidence also suggests that without banks' distress, Hungary's crisis may not have been disastrous. Although the fixed exchange rate was weakened by the 1929 balance-of-payments crisis, it was still able to survive the weeks of reserve drain from May through July with international support. Had the country not had a banking system with a mountain of non-performing loans, the crisis may not have further deepened from 15 June and the fixed exchange rate may have even survived. However, nosediving agricultural prices and subsequent loan defaults fatally weakened the already struggling financial system and banks pulled the currency with them. Within months, the banking system lost almost one billion pengős of capital for the country; approximately 20 per cent of banks' total assets or 16 per cent of the country's national income.

At Jacobsson's visit, the envoy and Hungarian authorities were discussing ways and means through which they would be able to trim off a few millions of pengős from state expenses here, or give a bit of boost to state revenues there, and find a way to eliminate the 85 million pengő deficit.¹⁷⁹ Little did they know that the banking system was already like an overheated pressure cooker, sitting on a one billion pengő problem. By focusing on government austerity to ensure that the League of Nations surveillance would not be reinstated in Hungary, they lost sight of where the actual problems were.

¹⁷⁹ BoEA, file OV33/79, Note of a conversation between Jacobsson and Jakabb, 23, 24, 26 March 1931.

APPENDIX

The representativeness of the bank database

Three publications of the *Statisztikai Szemle* (in English: Statistical Review, abbreviation in the text: SR) offer an overview of the Hungarian financial system.¹⁸⁰ The one from January 1931 covers the years 1928-29, and the second from January 1932 adds the year 1930. These two publications cover the whole financial system, including joint-stock banks, savings banks, and credit cooperatives. The third source from August 1933 discusses the years 1930-32 and includes the same types of financial institutions as my database: joint-stock banks and savings banks. These sources only report aggregate figures on the financial system and do not detail the representativeness of their sources. I am using these reports to test the representativeness of my own database compiled bottom-up through aggregating the balance sheets and profit and loss statements of individual joint-stock financial institutions. The comparison is reported below.

I am comparing the total assets, total equity, total earnings, and total lending of my own database to those reported by the three sources. The coverage of my database is between 71 and 95 per cent of the financial system when compared to the database including credit cooperatives. Coverage ratios are naturally much better when my dataset is compared to the source, which includes only joint-stock banks and savings banks. Compared to this source, I am actually capturing more of the population than the contemporary publication did.

¹⁸⁰ Dr. Gyula Szőnyi: A magyarországi pénzüintézetek az 1929. évben, (Title in English: Hungarian financial institutions in 1929), *SR*, 1. 1931; Dr. Gyula Szőnyi: A magyarországi pénzüintézetek az 1930. évben, (Title in English: Hungarian financial institutions in 1930), *SR*, 1. 1932; Dr. Gyula Szőnyi: Magyarország részvénytársasági formájú hitelintézeteinek tőkeállapota és üzleteredményei az 1932. évi zárszámadások szerint, (Title in English: The capitalization and earnings of Hungarian joint-stock financial institutions based on 1932 financial statements), *SR*, 8. 1933.

Table A2.1 The representativeness of the bank database

Panel 1 - Calculating representativeness based on total assets			
	Based on <i>SR</i> , 1. 1931	Based on <i>SR</i> , 1. 1932	Based on <i>SR</i> , 8. 1933
1928	79%		
1929	71%	71%	
1930		73%	111%
1931			104%
1932			100%
Panel 2 - Calculating representativeness based on total equity			
	Based on <i>SR</i> , 1. 1931	Based on <i>SR</i> , 1. 1932	Based on <i>SR</i> , 8. 1933
1928	94%		
1929	91%	91%	
1930		89%	112%
1931			118%
1932			113%
Panel 3 - Calculating representativeness based on total earnings			
	Based on <i>SR</i> , 1. 1931	Based on <i>SR</i> , 1. 1932	Based on <i>SR</i> , 8. 1933
1930			99%
1931			99%
1932			144%
Panel 4 - Calculating representativeness based on total lending			
	Based on <i>SR</i> , 1. 1931	Based on <i>SR</i> , 1. 1932	Based on <i>SR</i> , 8. 1933
1928	82%		
1929	80%	80%	
1930		95%	126%
1931			116%
1932			115%

Source: *SR*, 1. 1931; *SR*, 1. 1932; *SR*, 8. 1933; The author's own calculations based on *Hungarian Compass*, 1925/6-1934/5.

The methodology of the non-performing loan estimation

My analysis makes an approximation of the volume of non-performing loans. The theory is that a 10 per cent decline in the net interest margin over a year suggests that on average 10 per cent fewer loans paid interest than in the previous year. The assumption behind this theory is that the fall of the net interest margin can be fully attributed to the deterioration of the quality of the loan portfolio and changes to the structure of the market do not affect it. Panel 1 of Table A2.2 explains the calculations behind this theoretical approach.

The model in Panel 1 assumes a loan portfolio of 100 (column 1) and an annual net interest margin of 10 per cent paid on a monthly basis (column 2).¹⁸¹ Under these assumptions, the completely healthy bank of period 1 has net interest earnings of 10 for the whole year, which translates to 0.83 on a monthly basis (column 3). If, however, the bank's loan portfolio deteriorates and some of its loans stop paying interest, then its net interest margin declines. Period 2 assumes a 10 per cent decline in the net interest margin, which reduces net interest earnings by 10 per cent on a monthly basis (column 6). Net interest earnings of 10 per cent less imply that 10 per cent fewer loans are paying the annual 10 per cent interest margin. Thus, while the bank's total lending is still 100 in total, it is now divided into a 10 non-performing (column 4) and a 90 performing part (column 5). In this period 2, only column 5 loans earn interest, column 4 loans are non-performing. The net interest earnings generated are thus 10 per cent less on a monthly basis and on the aggregate level as well.

Panel 2 of Table A2.2 carries out the same analyses but assumes that interest payment occurs only once a year. For this analysis, it has been assumed that debt service takes place in July, after the period of the wheat harvest. Presumably, this was the general course in an agricultural country like Hungary. The overall impact of a 10 per cent decline in the net interest margin on the loan portfolio is the same. The difference is on the bank's balance sheet. Only in July does the bank have a clear understanding of the share of delinquent loans within its portfolio (columns 4 and 5). Since in other months there is no interest service, the bank does not obtain information on the health of its lending. Therefore, if interest was paid on an annual basis in July, then my theoretical approach likely underestimates the volume of non-performing loans for the end of the year.

¹⁸¹ In the table, NIM stands for net interest margin, NPL stands for non-performing loans.

Table A2.2 Background information on the non-performing loan (NPL) estimation

Panel 1				Period 1		Period 2	
	1	2	3	4	5	6	
Month	Lending	Net interest margin	Net interest earnings	Non-performing loans	Performing loans	Net interest earnings	
1	100	0.83%	0.83	10.00	90.00	0.75	
2	100	0.83%	0.83	10.00	90.00	0.75	
3	100	0.83%	0.83	10.00	90.00	0.75	
4	100	0.83%	0.83	10.00	90.00	0.75	
5	100	0.83%	0.83	10.00	90.00	0.75	
6	100	0.83%	0.83	10.00	90.00	0.75	
7	100	0.83%	0.83	10.00	90.00	0.75	
8	100	0.83%	0.83	10.00	90.00	0.75	
9	100	0.83%	0.83	10.00	90.00	0.75	
10	100	0.83%	0.83	10.00	90.00	0.75	
11	100	0.83%	0.83	10.00	90.00	0.75	
12	100	0.83%	0.83	10.00	90.00	0.75	
			10.00			9.00	

Panel 2				Period 1		Period 2	
	1	2	3	4	5	6	
Month	Lending	Net interest margin	Net interest earnings	Non-performing loans	Performing loans	Net interest earnings	
1	100	0%	0.00	0.00	100.00	0.00	
2	100	0%	0.00	0.00	100.00	0.00	
3	100	0%	0.00	0.00	100.00	0.00	
4	100	0%	0.00	0.00	100.00	0.00	
5	100	0%	0.00	0.00	100.00	0.00	
6	100	0%	0.00	0.00	100.00	0.00	
7	100	10%	10.00	10.00	90.00	9.00	
8	100	0%	0.00	10.00	90.00	0.00	
9	100	0%	0.00	10.00	90.00	0.00	
10	100	0%	0.00	10.00	90.00	0.00	
11	100	0%	0.00	10.00	90.00	0.00	
12	100	0%	0.00	10.00	90.00	0.00	
			10.00			9.00	

Panel 3	1	2	3	4	5	6	7
Year	NIM/ lending	Change	New NPL	NPL cumulative	Ungnt'd NPL	NPL/ equity	NPL/ lending
1926	3.8%						
1927	2.9%	-24.3%	490	490	483	122%	24%
1928	2.9%	-0.7%	19	509	497	105%	19%
1929	2.8%	-1.2%	37	546	400	77%	18%
1930	2.4%	-14.9%	529	1,075	478	88%	30%
1931	2.5%	4.7%	-138	937	564	98%	32%
1932	2.2%	-14.2%	409	1,346	990	175%	47%
1933	1.8%	-16.6%	497	1,844	1,287	224%	61%

Source: The author's own calculations based on *Hungarian Compass*, 1925/6 - 1934/5.

Panel 3 of Table A2.2 shows the detailed calculations behind Table 2.6 and 2.7 of the paper which apply the theoretical approach explained above. The calculations are made here for the whole financial system. The details are the following:

- Column 1 calculates the net interest margin to total lending ratio (referred to as *NIM/TL* in Tables 2.6 and 2.7)
- Column 2 calculates the year on year change of the *NIM/TL* ratio (referred to as the *Change in NIM/TL* in Tables 2.6 and 2.7).
- Column 3 calculates the volume of new non-performing loans for the end of each financial year. Applying the theoretical approach explained above, the change in the *NIM/TL* can be used as a proxy for the share of new non-performing loans within the whole lending portfolio of the banking system. As explained, if interest was paid only once a year, e.g. in July - which is much more likely than the monthly payment, especially for agricultural loans - then this approach underestimates the volume of new non-performing loans at the end of the year.
- Column 4 calculates the cumulative sum of non-performing loans to arrive at the stock of non-performing loans for the end of each financial year.
- Column 5 calculates the stock of unguaranteed non-performing loans. Some financial institutions' lending was guaranteed, meaning that if these loans were to default, the arising losses were incurred not by the bank but by the guarantor. The biggest guarantor was the Hungarian state: in 1930 approximately two-thirds of the total guarantees were provided by the state to two state-owned institutions, the Magyar földhitelintézetek országos szövetsége

and the Magyar földhitelintézet.¹⁸² Other financial institutions also enjoyed guarantees and the largest sums were on the balance sheet of four issue banks: the Magyar Általános Hitelbank, Pesti Magyar Kereskedelmi Bank, Magyar Leszámítoló- és Pénzváltó-Bank, and the Angol-Magyar Bank.¹⁸³ They together accounted for 50 per cent of the remaining one-third of the guarantees. Based on archival evidence, it is possible that the guarantees of these private institutions were also state-backed but there is no firm evidence for this.¹⁸⁴ Unfortunately, there is very limited information on these guarantees: whether they were used or not. My understanding based on archival evidence is that the guarantees were not called before the crisis.¹⁸⁵ In the calculations, the stock of non-performing loans in column 4 is reduced by these guarantees to arrive at the unguaranteed portion of non-performing loans in column 5.

- Column 6 calculates the ratio of unguaranteed non-performing loans and equity (referred to as *NPL/equity* in Tables 2.6 and 2.7).
- Column 7 calculates the ratio of non-performing loans and total lending (referred to as *NPL/lending* in Tables 2.6 and 2.7).

¹⁸² *Hungarian Compass*, 1931/2, pp. 110-3, 171-4.

¹⁸³ *Hungarian Compass*, 1931/2, pp. 97-107, 113-26, 129-35, 151-8.

¹⁸⁴ BoEA, file OV33/79, Note of a conversation between Jacobsson and Szcitovszky, 24 March 1931.

¹⁸⁵ BoEA, file OV33/79, Note of a conversation between Jacobsson and Szcitovszky, 24 March 1931; BoEA, file OV33/79, Note of a conversation between Jacobsson and Jakabb, 24 March 1931.

CHAPTER 3 - THE POLITICAL ORIGINS OF THE AUSTRIAN AND HUNGARIAN BANKING CRISES IN 1931

NO BANKS WITHOUT STATES, NO STATES WITHOUT BANKS

This chapter argues that the ultimate cause of the 1931 banking crises in Austria and Hungary can be traced back to meddling by political decision-makers with the incentives of the banking system. The international exchange rate system, what Keynes famously called 'the golden cage', put severe limitations on the ability of fiscal authorities to spend and borrow. Governments in both countries thus chose to rely on and use their respective financial systems to break out of the macroeconomic trilemma. In both countries, state intervention into the banking system encouraged imprudent lending and led banks to believe that they would be supported in times of trouble. Government interference thereby increased the vulnerability of the Austrian and Hungarian financial systems and contributed to the banking crises of 1931.

Politicians do not like laissez faire. Not only because they need to justify their own importance but also because, through intervening into the economy, they can pick and choose winners and build their constituency. US politicians of the 1990s and early 2000s, in their drive to maximize their popularity, advocated increasing home ownership. To that end, they chose to overtly promote mortgage lending which, in turn, led to moral hazard and thereby to imprudent lending in the financial system.¹⁸⁶ For almost a decade, everything seemed perfectly fine. The period witnessed an economic resurgence: the fiscal side was solid, monetary conditions were easy, and even those without insufficient income could invest in property. However, unfunded liabilities were accumulating in the financial system and, before anyone could identify their existence, the housing bubble blew up and the infamous sub-prime crisis began to unfold.

This chapter shows that the politicians of the interwar period in two war-shattered countries were no better. I argue that just like the recent sub-prime crisis, Austria's and Hungary's banking

¹⁸⁶ Calomiris and Haber, *Fragile by design*, pp. 203-82.

crises in 1931 can also be traced back to political factors. The state's meddling with the incentives of the banking system in the 1920s greatly contributed to the weakening and the eventual collapse of the financial systems of these two countries in 1931.¹⁸⁷

The conditions that Austria and Hungary faced after the Great War were a threat to the very existence of their pre-war political elites. Having lost the war and their empire, having failed to maintain the territory and population of their countries, and having imposed poverty, famine, and financial hardship on their populations, the Austrian and Hungarian elites had lost their legitimacy and were struggling to stay in power. The Austrian government was facing a society characterized by warring militias from the extreme right and left and was engulfed by the demands of a powerful industrial lobby.¹⁸⁸ Hungary experienced a brief communist takeover in 1919 and the impoverished rural population challenged the former imperial political elite.¹⁸⁹ Calls for a popular land reform became ever louder. In order to hold on to their power, the political class had to cater to the demands of these groups.

However, they did not have fiscal and monetary independence to adequately address these challenges.¹⁹⁰ The post-war Austrian and Hungarian economies were stabilized by the reconstruction programs of the League of Nations in the early to mid-1920s. These involved the introduction of new gold-based currencies, the establishment of independent central banks, and the requirement of balanced government budgets. The reconstruction also entailed the close international surveillance of government spending and borrowing. Although the two countries were re-admitted to international financial markets, their hands were tied and they could not freely pursue domestic political goals such as allaying the hardship of politically potent social groups.

Therefore, instead of spending and borrowing themselves, policy-makers induced the banking system to do it for them. They cooperated with and set the incentives for the financial system in a way that banks served the needs of politically important groups. This is why Austrian banks were able to maintain their bankrupt industrial base throughout the period, and this is how the majority of Hungarian banks became predominantly agricultural lenders by the end of the

¹⁸⁷ Parallels between the crises of the Great Depression and those of the Great Recession have been explored along other dimensions as well, see for example Eichengreen, *Hall of mirrors*; Postel-Vinay, 'What caused Chicago bank failures'.

¹⁸⁸ März, *Austrian banking*, pp. 273-317, 385-428; März, 'Die große Depression', pp. 410-1.

¹⁸⁹ Berend, 'Agriculture', pp. 152-62; Bődök, 'Politikai erőszak', pp. 85-108; Tomka, *Az első világháború következményei*; pp. 7-23.

¹⁹⁰ Obstfeld, 'The Great Depression as a watershed', pp. 12-25.

1920s. The largest banks effectively assumed treasury functions and, therefore, could assume the same guarantees for their existence that are normally exclusive to governments. This, in turn, enhanced the degree of imprudence in lending practices.

The political contract between governments, their core economic constituencies, and the banking sector backfired in 1931. Just as in the recent US sub-prime crisis, where bankers were extending mortgages regardless of recipients' income or assets, Austrian and Hungarian financial institutions were lending irrespective of risks and future returns. Bankers were led to pursue businesses that they would not have entered into, had they had to take financial responsibility for their decisions. They acted under the implicit (and sometimes explicit) assumption that they enjoyed unlimited state support and guarantees. And their assumption eventually proved right: when their insolvency could no longer be hidden behind new liquidity in 1931 and they ultimately weakened, they were bailed out.

This chapter is structured as follows. The first section provides an overview of the historical context of interwar Austria and Hungary. Next, I discuss the role of banks in these two economies and propose to use the framework developed by Calomiris and Haber to understand the role of the financial system within the political economy context. Then I describe how the Austrian political class cooperated with the universal banks to maintain their oversized industrial base throughout the 1920s and what incentives the Hungarian state introduced to direct lending towards agriculture. The final section concludes.

THE HISTORICAL CONTEXT

The war and the post-war settlement were a shock to the Austrian and Hungarian political elites. The war transformed the nature of political power globally. Whereas prior to 1914 most governments could largely ignore the demands of the populace who then had no say in the affairs of the state, this was no longer possible after 1918.¹⁹¹ The formerly disenfranchised population was demanding the right to vote and compensation for their sacrifices during and after the Great War. Whereas in 1906 only 6.2 per cent of the Hungarian population had the right to vote, this figure increased to 50 per cent in 1918 and then was slowly moderated to 40 per cent in 1919 and 28 per

¹⁹¹ Eichengreen, *Golden fetters*, pp. 6-12; Eichengreen and Simmons, 'International Economics', pp. 136-45.

cent in 1922 where it stabilized for the interwar period.¹⁹² Austria had universal suffrage from 1918 that also included women.¹⁹³ The political situation in Austria and Hungary was further aggravated by adverse economic conditions arising from the war and the disintegration of the empire. The Peace Treaties of Saint Germain in 1919 and Trianon in 1920 dismantled the Habsburg Empire and deprived both Austria and Hungary of approximately two-thirds of their territory and population. The economic dislocation that the war had left behind further aggravated political tensions. The impoverished population demanded state support for the returning and retired troops, war widows, the unemployed, and the poor. Austria experienced periods of starvation, and only its large agricultural sector saved Hungary from a similar fate.¹⁹⁴

Austrian and Hungarian political elites of the pre-war era had fallen from grace. Having lost their empire and their great-power status, facing their war-shattered population suffocating under severe shortages, and experiencing the mass influx of fellow Germans and Hungarians who had fled from neighbouring states, the imperial elites were struggling to stay in power. In the first years following the war, government policy was little more than sheer quest for survival. Hungary experienced a brief communist takeover in 1919 and Austria was struggling under the threat of both the radical left and right.¹⁹⁵

A delegitimised, weak political elite can maintain its power if it is able to buy support. However, Austria and Hungary had no financial means to adequately address the political and social challenges.¹⁹⁶ Deficient state legitimacy, poverty, and social unrest did not allow tax revenues to increase, which could have financed enhanced government spending. Further, due to the loss of legitimacy, and since wartime inflation wiped out private savings, there were limited prospects for issuing state debt domestically. Foreign capital also avoided these countries as they had been on the losing side in the war and were thus highly indebted due to reparations obligations. The lack of transparency around the exact value of reparations and the lack of domestic assets that could be used as loan collateral further alienated foreign creditors. Under these circumstances, the Austrian and Hungarian governments could only resort to monetizing the deficit. In other words,

¹⁹² Romsics, 'Huszadik századi', pp. 5-17.

¹⁹³ Rathkolb, 'The Austrian voter', p. 18.

¹⁹⁴ Berend, 'Agriculture', pp. 184-5.

¹⁹⁵ März, *Austrian banking*, pp. 273-317, 385-428; Ungváry, *A Horthy-rendszer*, pp. 118-38.

¹⁹⁶ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 438-44; Marcus, *Credibility, confidence*, pp. 1-49; März, *Austrian banking*, pp. 318-46; 457-68; Ormos, *Az 1924. évi államkölcsön*, pp. 7-23.

they were relying on the central bank's printing press. Excessive note issue, however, resulted in hyperinflation, which further estranged foreign capital, placing the two countries into the vicious circle of financially non-viable economies.¹⁹⁷

When the situation became politically and economically untenable, and the political elite acknowledged that they could not face up to the devastating political, social, and economic consequences, both countries turned to the League of Nations and both received a large foreign loan through the help of the League. Austria obtained international support in 1923, Hungary in 1924. In both countries, the program successfully stabilized the economy, introduced a new currency fixed to gold, and established an independent central bank.¹⁹⁸

International support, however, came with stringent conditions.¹⁹⁹ In both countries, the stabilization loan was conditional upon a period of close surveillance until the government budget was balanced, and afterwards on regular reporting to the Financial Committee of the League. Tax revenues were committed as collateral to the League loan and government spending was entirely controlled by a locally stationed League delegate in charge of releasing outgoing monies. Monthly budgets had to be approved by the League and their local representative had a veto right over every spending item. The actions of the central bank were also closely monitored by a domestically placed representative delegated by the Bank of England. Having most of their revenues collateralized and holding conditional debt liabilities towards the Reparations Commission, the Austrian and Hungarian governments were forbidden from raising capital abroad without the approval of the League and the Reparations Commission.²⁰⁰

The side effect of the liberal fiscal and monetary orthodoxy implemented through the directives of the League of Nations and demanded by international capital markets and the Bank of England was that it did not leave any room for independent domestic policy-making. Hungarian and Austrian authorities were restricted by the macroeconomic trilemma. The impossible trinity holds that of the three desirable policy goals - a fixed exchange rate, free capital flows, and independent monetary policy - only two can be simultaneously implemented. Under the interwar

¹⁹⁷ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 457-68; Marcus, *Credibility, confidence*, pp. 1-49.

¹⁹⁸ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 520-38, 544-50; Marcus, *Credibility, confidence*, pp. 50-93; März, *Austrian banking*, pp. 478-514.

¹⁹⁹ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 520-38, 544-50; Marcus, *Credibility, confidence*, pp. 50-93; März, *Austrian banking*, pp. 478-514.

²⁰⁰ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 520-38, 544-50; Marcus, *Credibility, confidence*, pp. 50-93; März, *Austrian banking*, pp. 478-514.

gold exchange standard, countries, including Austria and Hungary, committed themselves to the first two conditions, leaving the third unattainable.²⁰¹ Policy-makers thus did not have the freedom to independently stimulate the economy during periods of downturn. While in the pre-war period of the classical gold standard deflationary spirals emanating from such a policy commitment were swallowed by economies and suffered through, they became intolerable in the increasingly enfranchised societies of the post-war gold exchange standard.²⁰² In largely democratic political systems, periods of economic recession very often lead to the fall of the ruling political elite, or at least to radical shifts in government policy. By committing to the interwar orthodoxy, governments such as those of Austria and Hungary simultaneously gave up their fiscal and monetary independence, accepted restrictions on their spending and borrowing, and hence surrendered the power to pursue economic policies beyond the constraints posed by the economic trilemma.

Nonetheless, Austrian and Hungarian authorities could not simply ignore political and social pressures. The ephemeral stability that the reconstruction scheme had established had to be sustained. Continued economic stability and growth were essential for the political elites to consolidate their power. And for that spending and borrowing were necessary.

THE POST-WAR POLITICAL CONTRACT

As second best solution, the governments of Austria and Hungary chose to rely on their respective banking systems. Banks were not restricted as policy-makers were by international organizations and markets. Austrian and Hungarian universal banks, the largest lenders, had historically close connections to the political elite. The financial system of the interwar period became the channel, through which clandestine economic stimulus could be provided in the two countries.

Austrian and Hungarian universal banks

The modern Austrian and Hungarian financial systems had their roots in the first half of the 19th century. The first Austrian savings bank, the Erste Österreichische Spar-Casse was established in 1819, while Hungary's Pesti Hazai Első Takarékpénztár followed 20 years later.²⁰³ Austria's first

²⁰¹ Obstfeld, 'The Great Depression as a watershed', pp. 12-25.

²⁰² Eichengreen, *Golden fetters*, pp. 6-12.

²⁰³ Unless otherwise indicated, details and data on Austria's financial system are based on the *Financial Compass*, reviewed for the years of 1926-35 and details and data on Hungary's financial system are based on the *Hungarian*

universal bank, the Credit-Anstalt (CA) was established in 1855 and it later acted as a founder of the first Hungarian universal bank, the Magyar Általános Hitelbank.²⁰⁴ Another important Hungarian bank, the Pesti Magyar Kereskedelmi Bank, which only in the late 19th century established itself as a universal bank, was in fact founded 14 years before the Credit-Anstalt, in 1841, and it also acted as a bank of issue during the revolution of 1848-49.²⁰⁵ Both banking systems had a dual structure as they were comprised of savings banks (Sparkassen) and universal banks. While Sparkassen had a special role in each economy, it was the universal banks that dominated the financial system.²⁰⁶

Universal banks had a mixed purpose: they acted as commercial and investment banks under one roof as they not only extended loans to corporations but were also the shareholders of these entities, holding equity positions. Universal banks were important financiers of the economy and acted as market-makers by founding companies, providing seed capital for their early growth, and listing them in public exchanges once their business model was solid.²⁰⁷ The banks maintained a long-term ownership stake in their clients and continued to finance them through both debt and equity. An often cited German example is that of the close relationship between the Deutsche Bank and Siemens.²⁰⁸ Austria and Hungary offer similar cases for banks following companies ‘from cradle to grave’, such as Pesti Magyar Kereskedelmi Bank’s connection to the Első Budapesti Gőzmalmi Rt.²⁰⁹ and the Credit-Anstalt’s connection to countless industrial enterprises in the sugar industry (e.g. Nestomitzer and Peceker sugar refineries, Mährische Zuckerindustrie AG, Verein mährischer Zuckerfabriken und Ökonomien AG), in the brewing industry (e.g. Gösser Brauerei AG), or in the wood processing industry (e.g. Erste Österreichische Aktiengesellschaft zur Erzeugung von Möbeln aus gebogenem Holz, Jacob und Josef Kohn), just to name a few sectors.²¹⁰ The economic network that was thus developed around the universal banks was called their

Compass, reviewed for the years 1925/26 - 34/35. *Erste Österreichische Spar-Casse* in English: First Austrian Savings Bank; *Pesti Hazai Első Takarékpénztár* in English: First Domestic Savings Bank of Pest.

²⁰⁴ Magyar Általános Hitelbank in English: Hungarian General Creditbank.

²⁰⁵ *Pesti Magyar Kereskedelmi Bank* in English: Hungarian Commercial Bank of Pest.

²⁰⁶ See the analyses on the structure of the Austrian and Hungarian financial systems, respectively, in Figure 1.1 of Chapter 1 and Figure 2.4 in Chapter 2.

²⁰⁷ Rudolph, *Banking and industrialization*, pp. 91-121.

²⁰⁸ Guinnane, ‘Delegated monitors’, pp. 111-5.

²⁰⁹ Pogány, ‘From the cradle’, p. 530; *Hungarian Compass*, 1925/6, p. 93.

²¹⁰ März, *Austrian banking*, pp. 62-84; *Financial Compass*, 1926, pp. 64-83.

‘Konzern’.²¹¹ Austria had approximately 8-10, Hungary 3-5 universal banks, which were active financiers as well as owners of their own country’s economy.²¹²

Universal banks are well known from Alexander Gerschenkron’s seminal work on late industrialization.²¹³ Gerschenkron applied his thesis to the German universal banks but since his writing, research has shown that Austria and Hungary also had similar structures with a similar role as that of their German counterparts.²¹⁴ Gerschenkron argues that universal banks had a critically important role in the 19th century as they substituted for late industrializers’ ‘missing prerequisites’. While the second industrial revolution occurred in industries, which were heavily reliant on large initial capital investment (e.g. coal, mining, steel, etc.), late industrializers had underdeveloped capital markets that could not service this demand for capital. Universal banks offered an apt institutional solution to this challenge as they provided essentially long-term investment financing to the expanding heavy industry in these countries. They thus fulfilled a highly useful function from the perspective of the state as they financed these countries’ rise out of backwardness.

Gerschenkron’s interpretation has since been challenged and some argue that perhaps German universal banks were not critically important in driving industrialization in the 19th century. These arguments do not question the existence of universal banks’ extensive industrial networks and these banks’ role in financing industry. They only posit that these institutional solutions had less of a role in bringing about industrialization than Gerschenkron postulates.²¹⁵ This

²¹¹ The term has been applied consistently in the literature on Austria to the industrial clientele of the large universal banks. It appears that Hungarian authors apply the term when they are writing in English, see for example Boross, ‘Financing’.

²¹² Hungary based on *Hungarian Compass*, 1912/13, Austria based on Eigner, ‘Die Konzentration’, pp. 50-7. The literature is vague about the type of relationships within the Konzern. Authors tend to use the term ‘interest’ (in Hungarian ‘érdekeltség’, in German ‘Interesse’) to describe the connection between the universal bank and its industrial sphere. However, this phrase leaves it ambiguous whether the link was established through lending, through an equity investment, or through both. This and previous chapters apply the assumption that Konzern members are those entities for which the universal bank made such a claim as expressed in the *Hungarian Compass* and the *Financial Compass* for Hungarian and Austrian banks, respectively.

²¹³ Gerschenkron, *Economic backwardness*, pp. 5-30.

²¹⁴ Eigner, ‘Interlocking directorships’, pp. 260-93; Kövér, ‘Az Osztrák-Magyar Monarchia bankrendszerének fejlődése’, pp. 312-25; Kövér, ‘A pesti kereskedő-bankár’, pp. 47-55; Ránki, ‘The Hungarian General Creditbank’, pp. 355-73; Pogány, ‘From the cradle’, pp. 529-49; Pogány, ‘The industrial clientele’, pp. 215-28; Teichova, ‘Continuity and discontinuity’, pp. 63-74; Tomka, *A magyarországi pénzintézetek*, pp. 20-5; Tomka, ‘Bankuralom’, pp. 171-207.

²¹⁵ Herriegel, *Industrial constructions*, pp. 1-32. Further, Lehmann-Hasemeyer and Wahl argue that savings banks played a pivotal role in Prussian industrialization. Lehmann-Hasemeyer and Wahl, ‘Savings banks and the industrial revolution’.

chapter does not aim to decide the importance of universal banks in contributing to industrialization.

I would like to step beyond the literature by emphasizing that the Austrian and Hungarian universal banks were also closely involved in the political matters of the state. The universal banks were active funders of government debt. The Rothschild Syndicate was the exclusive financier of both the Austrian and the Hungarian state in independent as well as Empire-wide fundraisings. The Rothschild Syndicate could count the largest universal banks among its members from both countries of the Empire.²¹⁶ One of them, the Magyar Általános Hitelbank also had a separate agreement with the Hungarian Ministry of Finance from 1873, annually renewed until 1918, and then from 1927, based on which the bank assumed the role of the ‘state’s banker’. The arrangement required the bank to fulfil banking and treasury functions for the government, arrange sovereign issues, and regularly report to the Minister of Finance on macroeconomic and international matters, etc.²¹⁷ The bank also had a central role in the monetary stabilization of the early 1890s. Further, having an extensive international network, universal banks also acted on behalf of their country as special envoys in international financial circles. They were able to tap the interest of foreign markets towards new sovereign debt issues, they arranged these flotations through their international connections, and they acted as trustees for the international financiers following the issue.

The cooperation between fiscal and monetary policy-makers and the owners and managers of financial institutions was made easier by the fact that these groups were closely connected at a personal level as well. Ausch’s work provides a detailed narrative of how contemporary Austrian political and financial elites intermingled.²¹⁸ Weber and Eigner also highlight authorities’ presence in banks’ management and board rooms.²¹⁹ For Hungary a number of authors have studied the power of bankers during the period.²²⁰ Due to their close business relations with the state and their economic clout, bankers were often appointed into political positions. The revolving door between

²¹⁶ Kövér, ‘A Rothschild-konzorcium’, pp. 333-58.

²¹⁷ HNA, file Z51, bond 56, item (in Hungarian: tétel) 832.

²¹⁸ Ausch, *Als die Banken fielen*.

²¹⁹ Eigner, ‘Die Konzentration’, pp. 463-4, 487; Eigner, ‘Personal networks’; Weber, ‘Vor dem großen Krach’, pp. 266-8.

²²⁰ Kövér, ‘A brit tőkepiac’, pp. 486-513; Kövér, ‘A magyar állampénzügyek’, pp. 749-61; Kövér, ‘Kincstár és konzorcium’, pp. 74-100; Kövér, ‘Bankárok és bürokraták’, pp. 93-115; Kövér, ‘A bécsi Rothschildok’, pp. 140-59; Lengyel, ‘Vállalkozók, bankárok’, pp. 400-15; Pogány, ‘From the cradle’, pp. 529-49.

universal banks' board and top management seats and ministerial and central bank positions greatly reduced the distinction between the financial and political elites of the time.²²¹

I hence argue that the role the universal banks, which were essentially corporate financial institutions, played during the interwar period transcended the role prescribed to them by the Gerschenkronian literature. They did not only facilitate industrial development. They also appear to have provided support to important government functions that the state, due to lack of funds or know-how, was not able to fulfil on its own.

The political economy of banking

Calomiris and Haber developed a framework that takes into account banks' economic as well as political role and places the banking system into a political economy context.²²² In their seminal work on banking and credit, the authors argue that a country's banking system, its structure, development, and riskiness, all depend upon the country's political institutions.

The main tenet of Calomiris and Haber is that there is mutual dependence between the bankers and the state. Banks need the state because, due to its inherent riskiness, banking is a non-viable business unless assurances are provided to deposit holders by a third-party. Banks are 'maturity transformers': they borrow short-term but invest long-term. As such, their business is highly risky and unless deposit holders receive a guarantee that they would not be expropriated, they will not place their savings into a bank. The state can provide such an assurance and thus it plays an inevitable role in making banking feasible. At the same time, the state is also dependent on the financial system. Banks are an essential source of public finance and they are important in financing the debt of the state. Therefore, there are 'no banks without states and no states without banks'.

The core of the problem, according to Calomiris and Haber, is that state officials face three sets of conflict of interest when making their decisions about the institutions governing the financial system.²²³ First, they must act as regulators towards the banks, but at the same time, they are also counting on banks to finance government and state expenses. Second, the government must also act as enforcer of the contract between the banks and their debtors but the latter are also the

²²¹ For example, Richard Reisch, Hermann Schwarzwald, and Alexander Spitzmüller in Austria and Lóránt Hegedűs, László Lukács, and Lajos Walko in Hungary.

²²² Calomiris and Haber, *Fragile by design*.

²²³ Calomiris and Haber, *Fragile by design*, pp. 33-41.

government's voters who should be more pleased if the contracts were not enforced. Finally, while the government should urge deposit holders to take financial responsibility for the performance of the bank in which they are placing their savings, depositors are also voters who should find state-financed deposit insurance a more appealing solution to the information asymmetry between them and the bank. The state must, therefore, decide on the institutions governing the banking system on the basis of its own conflicting incentives.

How the institutions governing the banking system evolve thus depends on how the state responds to its own conflicting interests, what the relative power of the state and the bankers is, and how the continuous negotiations between these two parties evolve. Calomiris and Haber refer to this phenomenon as the 'Game of Bank Bargains' between the state and the bankers.²²⁴ This bargaining ultimately determines the rights and obligations of the financial system.

Calomiris and Haber also demonstrate that the Game of Bank Bargains has a role to play in financial crises. The authors show that different historical bargains have led to different institutional settings for banking, which have hence given rise to banking systems with a varying degree of susceptibility to crises. The authors show that the Canadian financial system has not experienced a panic for over a century while the banking system of the United States goes through a crisis every few decades. Although the authors do not analyse the case in detail, they do refer to interwar Germany as a potentially interesting test case for a bargain.²²⁵ This chapter develops a test case of two small neighbours in Germany's backwater, Austria and Hungary, which had a financial system structurally very similar to that of Germany during the interwar period. I argue that the complex role of Austrian and Hungarian universal banks in their respective country's economy and politics can be best understood through the model of Calomiris and Haber.

Before 1914, the Austro-Hungarian Monarchy had a weakly autocratic and non-democratic state, which relied on the services of the financial system.²²⁶ As described previously, it incentivized financial institutions in a way that the latter became an extension of the interests of the state and, to some extent, an essential part of the government. Austria and Hungary thus had a select group of universal banks, which were entrusted with the financing of industry and with funding the sovereign debt through domestic and international issues. Bankers enjoyed privileges granted to them by the authorities for fulfilling these services and the privileges generated rents as

²²⁴ Calomiris and Haber, *Fragile by design*, p. 27.

²²⁵ Calomiris and Haber, *Fragile by design*, pp. 467-9.

²²⁶ Calomiris and Haber, *Fragile by design*, pp. 50-3.

compensation. Exclusive rights, such as being the state's banker, being one of a very few who was chartered to underwrite loans, and being the one who could float state debt domestically and abroad, generated profits to the few universal banks that other incumbents of the financial sector could not access. Credit penetration was not deep: lending was directed predominantly to the political, economic, and financial elites. Calomiris and Haber refer to such a political-financial collaboration as the 'centralized autocratic network'.²²⁷

The post-war settlement brought changes to this 19th century partnership and had shifted it somewhat towards what Calomiris and Haber describe as the 'populist democracy with politically determined credit'.²²⁸ The war gave strength to a populist undercurrent that was challenging the weak political elite. Politicians, however, were bound by the macroeconomic trilemma and thus did not have the spending and borrowing power to adequately tackle social and political challenges. Anxious to stay on top, they increasingly relied on the banking system to do what they themselves were not permitted to do. The political elite and the bankers thus established a new contract, which was better able to address the new political challenges of the post-war context. The new political contract set the incentives of the banking system in a way that lending was able to address the pressing social and political concerns of the broader electorate and not only cater to the financing needs of a privileged few.

AUSTRIA: COMMITMENT TO INDUSTRY

Austria inherited large industrial structures and a peculiar form of industrial financing from the times of the Habsburg Monarchy. The territory of what later became the Austrian Republic was among the two most industrialized regions of Central Europe, along with the Czech lands. Prior to World War I, industrial capacities serviced the markets of the whole Empire and international trade.²²⁹ Austria's industrial development was funded by the universal banks, which were active financial supporters of start-ups and capital formation through shareholding as well as lending.²³⁰

²²⁷ Calomiris and Haber, *Fragile by design*, p. 40.

²²⁸ Calomiris and Haber, *Fragile by design*, pp. 57-8.

²²⁹ Klein, Schulze and Vonyó, 'How peripheral was the periphery', pp. 66-74.

²³⁰ Good, *The economic rise*, pp. 125-61.

Around 1914, the Austrian universal banks owned 53 per cent of all of Austrian joint-stock enterprises.²³¹

However, in the post-war years, Austria's large industrial infrastructure became disproportionate as significant excess capacities remained unutilized due to subdued demand.²³² The country, substantially reduced in size and population, had a diminished domestic demand. International trade connections were encumbered by political animosity, were only slowly being rebuilt after the economic stabilization, and continued to be saddled by tariffs. As a result, industrial expansion remained moderate in the interwar years, technological advances were put on hold, and old structures were retained.²³³ This resulted in unemployment and a strengthening trade union movement. Since the economy within the new borders was predominantly industrial, it could not rely on the agricultural sector to 'hide' the jobless and keep them fed, as could neighbouring Hungary.²³⁴ The unemployment rate was hence high among industrial labourers and the ensuing poverty created social problems and political instability. The general disillusionment with the Austrian political, industrial, and financial elite culminated in frequent trade union demonstrations and public displays of social unrest jumping on every sign of political weakness.²³⁵

The solution to the disproportionate industrial infrastructure would have been the liquidation of excess industrial capacities to achieve a higher level of efficiency. This, however, would have required sacrifices: suppressed economic growth at least in the short-term, a further increase in unemployment, and potentially intensifying political instability. Both the politicians and the universal banks were against this.

For the universal banks reducing the size of industry was not an option. The large Viennese banks were committed to reinstating their pre-war economic clout in the territory of the former Austro-Hungarian Monarchy.²³⁶ As owners and financiers of industrial enterprises, liquidations would have reduced the size of their assets and thus their own economic power. Discarding weak

²³¹ Rudolph, *Banking and industrialization*, p. 120. While the figure refers to ownership, not to contribution to industrial output within the whole of the economy, it does suggest that universal banks wielded significant influence over Austrian industry.

²³² Feinstein, Temin and Toniolo, *The European economy*, pp. 25-6, 29-30; Mosser and Teichova, 'Investment behaviour', pp. 123-34.

²³³ Klein, Schulze and Vonyó, 'How peripheral was the periphery', pp. 75-9.; März, 'Die große Depression', p. 412.

²³⁴ Berend, 'Agriculture', pp. 184-5; Matolcsy, 'A mezőgazdasági munkanélküliség'.

²³⁵ Marcus, *Credibility, confidence*, pp. 4, 61, 282-305.; März, *Austrian banking*, pp. 273-317, 385-42; März, 'Die große Depression', pp. 410-1, 414.

²³⁶ Eigner, Bank-industry networks, pp. 91-114; Schubert, *The Credit-Anstalt*, pp. 35-6; Stiefel, 'The reconstruction', pp. 178-93; Weber, 'Austrian banking', pp. 76-98.

industrial assets would also have created great short-term losses for the banks, which their shareholders would have needed to finance. These losses could have potentially called into question the existence of the universal banks or the necessary capital increase could have reshuffled the bank's shareholding. Such risks were simpler to avoid both for bank managers and bank shareholders. Furthermore, the universal banks were also facing the risk of escalation: since the members of the Konzern were interconnected, the liquidation of only a small number of enterprises could have initiated a domino effect and buried the entire Konzern and the bank under itself. This was especially likely given Austrian industry's significant overcapacities: the lower the capacity utilization, the sharper are the effects of revenue loss to the economic viability of the enterprise (exactly the opposite of the advantage derived from economies of scale). Therefore, universal banks had a deep-rooted interest in preserving old and excessive industrial structures.

The political class had the same interest. Their opposition to industrial restructuring originated from two sources. For one, an economic downturn, unemployment, and the ensuing social unrest all threatened their already fragile political position. Thus to avoid the threat of a communist takeover, similar to the one that its eastern neighbour had experienced, and to mitigate the threat of a regime change, the political class was committed to supporting Austrian industry. On the other hand, they themselves were often financially interested in the survival of the universal banks. Their opposition to an industrial restructuring and their support for the universal banks thus also served the personal objective of retaining their financial and economic power.

The common goal of maintaining industry, despite it being redundant and inefficient, was hence the basis of the interwar political contract between the universal banks and the political elite. Universal banks chose to maintain the industrial structure because it was a cheaper alternative than having to liquidate weak enterprises. Cheapness was, in turn, guaranteed by the state, which wanted to maintain Austrian industry to avoid social and political unrest and to maintain its own political and economic power.

Masquerading as profitable banks

Before the collapse of the CA in 1931, three other universal banks crumbled. The Verkehrsbank (VB) and the Unionbank (UB) in 1926, and then in 1929, the Boden-Credit-Anstalt (BCA) sank into distress. Finally, the crisis in 1931 erupted with the announcement of the CA's losses. Nonetheless, all four universal banks pretended to be profitable enterprises until only months before their collapse.

As Chapter 1 has demonstrated, these four universal banks were all carrying highly leveraged Konzerns with low profitability levels, and they themselves had been insolvent as far back as 1925. Nonetheless, their insolvency was very well hidden by their financial statements. Table 3.1 shows details from each of the four banks' financial statements. Columns 1 and 2 offer details from the four universal banks' last financial statement before their distress. Columns 3 through 7 analyse the financial statements based on which these banks made their last dividend payment. Finally, columns 8 and 9 calculate the time that elapsed between the last dividend payment and the date when these banks' distress became publicly known.

What becomes clear from column 4 is that none of the four banks was preparing for a failure through building reserves. In its 31 December 1925 accounts, the last financial statement before its distress became known, the UB did not acknowledge that any of its assets was non-performing. The same applied to the CA: a year before it generated AS 140 million losses (column 2), it did not recognize that at least some of those losses might be forthcoming. The BCA did acknowledge that 0.03 per cent of its assets were weak in 1928 (column 4), but this is a meagre figure considering that the bank failed a few months afterwards. Finally, the VB is the odd-one-out among the four banks. This bank was profitable in the two years before its amalgamation with the BCA in 1927. It did not build reserves for future losses but it did not even have losses. The information in Table 3.1 thus further complicates the mystery around the need for the VB's merger with the BCA, already discussed in Chapter 1.

For the UB, BCA, and the CA, the rationale behind avoiding write-offs and the creation of reserves for losses was that had the banks done these, the negative profit would have translated into a direct loss of their equity and their shareholders would have had to inject new capital into them. It was hence simpler and cheaper to keep the bad loans on their books and pretend right until the end that they were healthy assets.

Nonetheless, the banks did even more egregious things than this simple accounting trick around non-performing loans. They continued to book interest income on the non-performing loans.²³⁷ Through this solution, they remained profitable on paper, and could declare dividends just

²³⁷ See Chapter 1.

Table 3.1 Accounting fraud at the four universal banks which were bailed out

	1	2	3	4	5	6	7	8	9
	Date of the last financial statement before distress	Earnings in last financial statement AS million	Date of financial statement for last dividend payment	Reserves for losses and write-offs % of assets	Date of last dividend payment	Per share dividend value AS/share	Volume of dividend AS million	Date when problems became publicly known ^{a)}	Months elapsed between dividend payment and distress
UB	31.12.26	-0.16	31.12.25	0.00%	12.07.26	2.5	2.00	20.09.26	2.3
VB	31.12.26	0.24	31.12.24	0.00%	01.07.25	NA	NA	03.12.26	17.3
BCA	31.12.28	10.68	31.12.28	0.03%	11.04.29	7.5	8.25	12.09.29	5.1
CA	31.12.30	-139.60	31.12.29	0.00%	03.06.30	3.4	7.23	11.05.31	11.4

Note: a) Based on evidence from the BoEA.

Sources: UB: *Financial Compass*, 1927, pp. 420, 423-4; *Financial Compass*, 1928, pp. 459-60; VB: *Financial Compass*, 1927, pp. 428, 430-1; *Financial Compass*, 1928, pp. 461-2; BCA: *Financial Compass*, 1930, pp. 255, 264-5; CA: *Financial Compass*, 1931, pp. 263, 274; Schubert, *The Credit-Anstalt*, p. 9.

Table 3.2 The structure of three mergers among universal banks in the 1920s

	CA - BCA	BCA - UB	BCA - VB
Receiving bank	CA	BCA	BCA
Merged bank	BCA	Unionbank	Verkehrsbank
Successor entity	CA	BCA	BCA
Year announced	1929	1926	1926
Effective date	1/1/1930	25/3/1927	25/3/1927

Structure of the merger	CA purchases BCA through a share swap in the ratio of one CA share for four BCA shares.	BCA purchases UB through a share swap in the ratio of one BCA share for 18 UB shares.	BCA purchases VB through a share swap in the ratio of one BCA share for 33 VB shares.
Valuation of the share swap	Book value of equity at BCA in 1928: AS 130/share Book value of equity at CA in 1928: AS 56/share Since once CA share bought four BCA shares, the market value of once BCA share was set at AS 14 at the merger. A holder of one BCA share, with a book value of AS 130/share, received AS 14 for his share, i.e. incurred a 90% loss.	Book value of equity at BCA in 1926: AS 84.67/share Book value of equity at UB in 1926: AS 45/share Since one BCA share bought 18 UB shares, the market value of one UB share was set at AS 4.7 at the merger. A holder of one UB share, with a book value of AS 45/share, received AS 4.7 for his share, i.e. incurred a 90% loss.	Book value of equity at BCA in 1926: AS 84.67/share Book value of equity at VB in 1926: AS 32.07/share Since one BCA share bought 33 VB shares, the market value of one VB share was set at AS 2.57 at the merger. A holder of one VB share, with a book value of AS 32.07/share, received AS 2.57 for his share, i.e. incurred a 90% loss.
Acknowledged losses	AS 55 million was the BCA's equity in 1928. Of this 90%, i.e. AS 49.5m was recognized as a loss. This was 5.8% of the BCA's total assets in 1928.	AS 28 million was the UB's equity in 1926. Of this 90%, i.e. AS 25.2 million was recognized as a loss. This was 14.1% of the UB's total assets in 1926.	AS 8.75 million was the VB's equity in 1926. Of this 90%, i.e. AS 7.875 million was recognized as a loss. This was 5.7% of the VB's total assets in 1926.
Summary	Bail-in of shareholders: 90% loss ratio Bail-in of depositors and creditors: None: depositors and creditors did not incur any losses.	Bail-in of shareholders: 90% loss ratio Bail-in of depositors and creditors: None: depositors and creditors did not incur any losses.	Bail-in of shareholders: 90% loss ratio Bail-in of depositors and creditors: None: depositors and creditors did not incur any losses.
Source	<i>Financial Compass</i> , 1930, pp. 256, 264-5. <i>Financial Compass</i> , 1931, pp. 262-3, 274.	<i>Financial Compass</i> , 1928, pp. 272-3, 279-80, 459-60.	<i>Financial Compass</i> , 1928, pp. 272-3, 279-80, 461-2.

a few months before they collapsed. That is, they masqueraded as profitable banks until the day they announced their failure.

The BCA was probably the most flagrant in this regard. Column 2 of Table 3.1 shows that in its last financial statement before its failure, dated 31 December 1928, it reported a profit of AS 10.68 million. Based on these earnings, it paid dividends in April 1929 (column 5). This occurred only five months before rumours around its financial distress started spreading in mid-September 1929 (column 9). What makes this even worse, is that while on a per share basis the value of dividends was the same as in the previous year, AS 7.5 (column 6), the total volume of dividend payment in the spring of 1929 was AS 8,250,000 (column 7), which was 10 per cent more than a year before. That is, just a few months before its collapse, the BCA pretended to be doing just as well as a year before in terms of profitability, if not better.

The UB's financial difficulties became known in the late summer, early fall of 1926. A few weeks before that, in July (column 5), the bank paid dividends amounting to AS 2.5 per share, at a total volume of AS 2 million (columns 6 and 7). A little more than two months afterwards, the bank's financial distress became known and for the financial year ending 31 December 1926, the UB reported a loss (column 2). That is, the bank pretended to be profitable in the spring of 1926, then in the fall of 1926 it announced its distress, and in its last financial statement before the merger with the BCA, it reported a loss.

The CA was a bit more responsible at its last dividend payment: it declared a dividend of AS 3.4 per share (column 6) for the financial year of 1929, reduced from AS 4.0 in 1928. However, considering that a year afterwards the bank reported a loss of AS 140 million (column 2), even this reduced dividend payment seems excessive.

Finally, the VB again stands out among the four banks. Not only did it remain profitable in the two years before its merger with the BCA, it also did not pay dividends in these years. The bank's last dividend payment occurred in 1925 for the financial year of 1924 (column 5). That is, almost a year and a half passed between its last dividend payment and the announcement of its merger with the BCA. This information suggests that the amalgamation of this bank in 1927 into the BCA occurred not due to the VB's distress. These details appear to confirm the hypothesis discussed in Chapter 1 that the VB was granted to the BCA for agreeing to acquire the UB.

Collusion at the mergers

Another intriguing element of the story of the four Viennese universal banks is that none of them actually failed; all of them were bailed out. The CA was rescued by the Austrian state in

1931 and it shall serve as an interesting case for authorities' intervention into the banking system, to be discussed later. The other three universal banks were, on the other hand, saved by incumbents: the VB and the UB were merged into the BCA and the BCA was absorbed by the CA. The study of the details of these three mergers reveals that the banks colluded at these transactions in order to hide the failing bank's losses. Table 3.2 presents the details.

Each transaction was structured through a share swap, explained under the 'Structure of the merger' in Table 3.2. The benefit of a share swap is that it requires no cash movement and can be implemented on paper. The 'Valuation of the share swaps' reveals that in each of the three cases the shareholders of the acquired entity incurred a 90 per cent discount on the value of their equity investment. The very fact that the equity holders of the absorbed entity were willing to enter into a transaction at such terms, and thereby accept such an enormous loss on their share capital, suggests that the three merged banks were in severe financial distress.

However, this distress was not fully acknowledged by the structure of these transactions. The liabilities of failed banks (i.e. the deposits and credits) were transferred from the merged entity into the successor entity at book value. This means that the value of these resources was not depreciated at the mergers. Therefore, the structure of these transactions recognized failing institutions' non-performing assets and past losses only to the extent of shareholders' reduced capital but not beyond that. Table 3.2 under 'Acknowledged losses' calculates the amount of losses that were actually admitted at the mergers. In the case of the UB this amounted to 14.1 per cent of the assets, while for the VB and the BCA the figure was even lower, only 5.7 per cent and 5.8 per cent of their assets, respectively. It is very unlikely that shareholders were willing to give up almost their whole ownership stake for such low cumulative losses. It is much more likely that the failed institutions' past losses were not fully acknowledged and written off but were kept on the successor entity's books. The banks thus followed their regular fraudulent accounting practices at these mergers and continued to hide the weakness of their Konzerns.

The fact that the 90 per cent discount on shareholders' equity was used in all three mergers reinforces this view. While it is theoretically possible that in each of the three transactions, the magical 90 per cent of equity discount exactly accounted for each individual bank's past losses, it is much more likely that the 90 per cent figure was an industry 'best practice'. The recurring 90 per cent figure in these mergers seems to have been a solution which served the interests of all parties involved. Rather than having to acknowledge the actual losses of their Konzern, the failed banks' owners could strike a deal with another bank which was also interested in maintaining the failing Konzern. The loss of 90 per cent of their capital was

the price that the failing bank's shareholders paid for keeping their Konzern in operation, keeping the board seats they had in their Konzern companies, and for the opportunity to remain minority owners of the successor entity which became an even larger bank than their own. Considering that they could have been left with nothing, this seems like a good deal. On the other hand, the managers of the absorbing financial institution also gained from the arrangement. They were able to avoid the write-offs and liquidations within industry, which could have started a chain reaction of bankruptcies that could have easily melted away their own Konzern as well. The mergers were thus complicit agreements between bankers who were all interested in hiding the losses of the inefficient and failing industrial corporations they owned.

Since past losses were not acknowledged at these transactions, the cash-deprived, non-viable Konzern companies were kept alive within the absorbing bank. These failing companies continued to use up fresh funds from the acquirer - a classic case of throwing good money after bad. This chain of mergers, nonetheless, did nothing else than disguise the actual performance of the universal banks, and deepened the problems of the Austrian banking system.

Government interference

How could the banks get away with accounting fraud? The answer is that authorities turned a blind eye to these practices and, especially in times of trouble, they actually supported the big banks to hide losses and stay afloat.²³⁸

For one thing, Austrian financial institutions were barely monitored by the fiscal authority and the Ministry of Finance accepted and seems to have even supported this situation. Austria had a Banking Commission, established in 1921 with the goal to oversee financial institutions and make reports to the Federal Parliament.²³⁹ However, the Commission was weak: it did not have enforcement rights and it was inhibited in its observations. Naturally, banks did try to curtail the activities of the Commission but what is even stranger is that so did the Ministry of Finance. The Ministry did not provide the necessary information to the Commission and neglected its recommendations. The charter of the Commission expired on 31 December 1926 and it was not prolonged. Two years later a new body was set up, the *Österreichische Revisions- und Treuhandgesellschaft* whose purpose was to provide chartered

²³⁸ Battilossi describes a similar relationship between Italian authorities and universal banks. Battilossi, 'Did governance fail'.

²³⁹ Enderle-Burcel, 'The failure of crisis management', pp. 116-20.

accounting and audit services to the whole private sector.²⁴⁰ However, audits were not compulsory: they were only carried out at the request of the private institution.²⁴¹ The primary purpose of the organization seems to have been not to ensure financial prudence but to please Bank of England and League of Nations officials that Austria on paper had a supervisory organization.

The Austrian National Bank's (ANB) supervisory authority was no more intrusive. Banks reported their financial statements to the central bank on an annual basis and they refused to increase the frequency. To put this into perspective: the Reichsbank, the German central bank, required German financial institutions to publish their accounts on a monthly basis.²⁴² Even in the post-crisis period after its collapse in 1931, the Credit-Anstalt refused to publish monthly reports.²⁴³

Lack of supervision was a passive way through which the authorities supported the survival of the insolvent universal banks and their industrial Konzern. As authorities turned a blind eye to accounting fraud, the universal banks could continue to pretend that their loans were not delinquent, book revenues on them, and remain profitable on paper. These banks could thus hide their insolvency and they could sustain this game as long as they were able to gain access to liquidity.

In addition to that, there is evidence that in a number of fraudulent cases authorities not only overlooked deceit but were actually actively involved in arranging it. One salient example for this is the dividend issue. How could the universal banks pay dividends just weeks before they failed? This suggests that even though they were already insolvent, at the moment of the dividend payment they still had access to some liquidity. Who was supplying that liquidity? Archival evidence implies that in the case of one of the four bank failures, that of the BCA, the liquidity source was in all likelihood none other than the ANB. Records reveal that the President of the ANB, Richard Reisch chose not to listen to warnings presented to him by the management of the ANB regarding the weak position of the BCA and did not put an end to the ANB's rediscounting of BCA bills until the very end.²⁴⁴ This occurred despite the fact that Reisch had been closely scrutinizing the BCA's financials from 1927 and was hence fully aware of the bank's financial difficulties, which became clearly pronounced from 1927. By

²⁴⁰ BoEA, file OV28/32, Letter from Kay to Siepmann, 2 Nov. 1928.

²⁴¹ BoEA, file OV28/1, Draft legislation on Chartered Accountants and Raison d'etre, 19 March 1927.

²⁴² HNA, file Z6, box 2, 25 Jan. 1928.

²⁴³ BoEA, file OV28/5, Memorandum: Report No III by Mr. Bruins, 28 Aug. 1931.

²⁴⁴ BoEA, file OV28/34, Letter from Brauneis to Siepmann, 12 Oct. 1929.

retaining the ANB rediscount support towards the BCA even against questionable collateral, Reisch acted against the statutes of the ANB.²⁴⁵ Additionally, through this he supplied the liquidity from which the insolvent bank could pay its shareholders dividend.²⁴⁶ Put more simply: it seems very likely that BCA shareholders' compensation was paid by the ANB just a few weeks before the bank failed.

Evidence also confirms that authorities were aware and supportive of the terms under which the bailout of the various universal banks was agreed on. Their support implies their acceptance of fraud since the terms of these transactions acknowledged past losses to a limited extent, they did not require banks to raise fresh capital, and they were a clear sign of collusion between the universal banks. While there seems to be limited information on authorities' involvement in the VB transaction, the opposite applies to the UB and the BCA amalgamations. Archival records reveal that Reisch closely monitored the event to ensure that the UB's shares were eventually transferred to the BCA.²⁴⁷ Further, the merger of the BCA and the CA in 1930 happened not only with the support of the authorities but the transaction was arranged by them and they provided financial support to make it happen. The two banks' merger was, in fact, forced through by authorities against the will of the CA's management. When Chancellor Schober heard that the CA was unwilling to absorb its smaller competitor, he called on the management of the CA, and told them that:²⁴⁸

[...] he had accepted the post of Chancellor at the special request of the representatives of Finance, Commerce and Industry. He considered it therefore the *duty* of these representatives to spare him the trouble of any disturbance of a financial and economic character. If *he could not reckon on their help in the Boden-Credit-Anstalt crisis*, he would resign immediately.²⁴⁹

A statement from the managing director of the ANB also seems to suggest that the CA had to acquire the BCA against its will and under the watch of the authorities. Brauneis wrote to a Bank of England Official that 'the amalgamation will afford the Credit-Anstalt considerable possibilities for profit and that *it will not have to regret that it has embarked in this enterprise.*'²⁵⁰

²⁴⁵ BoEA, file OV28/34, Letter from Brauneis, 12 Oct. 1929.

²⁴⁶ Ibid.

²⁴⁷ BoEA, file OV28/32, Letter from Kay, 2 March 1927.

²⁴⁸ BoEA, file OV28/32, Letter from Kay, 22 Feb. 1927.

²⁴⁹ BoEA, file OV28/2, Statement from Schober, 22 Oct. 1929, emphasis added.

²⁵⁰ BoEA, file OV28/34, Letter from Brauneis to Siepmann, 12 Oct. 1929, emphasis added.

Additionally, the government and the ANB remained active in the BCA-CA merger's afterlife as well. After the transaction, the CA received the largest support from the government. Besides providing tax and duties exemptions, it was rumoured that the government made a pledge to guarantee all of the deposits and ANB advances of the merged entity.²⁵¹ The value of this assumed government liability is unclear because neither merging bank reported the liquidity support it received from the ANB. At a minimum, the value was around AS 290 million, which translated to 15 per cent of total government revenues and 2.4 per cent of the nominal GDP for 1929.²⁵² This was an outstandingly high off-balance sheet liability for the state in the middle of a recession.

On top of the government's guarantee, the Credit-Anstalt was also treated to the ANB's scheme, the so-called cross-deposits. Through this channel, the ANB was able to indirectly lend to the CA.²⁵³ After the merger, the ANB made an agreement with a number of foreign banks based on which it deposited certain US dollar or British pound amounts at these banks which then, in turn, deposited the same amounts at the CA for a profit margin of one percentage point. The estimated total value of cross-deposits was USD 14-5 million, almost ten per cent of the CA's total assets in 1930 (after its merger with the BCA).²⁵⁴

Authorities did not want to let the universal banks simply go under. Each bailout, whether organized by the banks or by the authorities, enjoyed the implicit and, in the case of the BCA-CA merger, the explicit support of the government and the ANB. With the universal banks owning much of Austrian industry, letting only one fail could have started a chain of bankruptcies leading to liquidations, unemployment, disgruntled trade unions, and what the political class feared the most, political unrest. The universal banks thus enjoyed the support of the authorities and they could delay the confrontation with their true profitability.

It also appears that some members of the political class had personal reasons for ensuring the survival of the universal banks. Reisch can serve as the most conspicuous example. Reisch was a former Minister of Finance, a former vice-president of the BCA, and the president of the ANB from 1922.²⁵⁵ His decisions in connection with the BCA failure suggest that he had

²⁵¹ BoEA, file OV28/2, Memorandum on the BCA.

²⁵² The author's own calculations based on the *Financial Compass*, 1930, p. 264-5; *Financial Compass*, 1931, p. 274; *Financial Compass*, 1932, p. 275; Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen', p. 5.; *Statistisches Handbuch*, 1930, p. 195.

²⁵³ BoEA, file OV28/75, Cross deposits.

²⁵⁴ BoEA, file OV28/75, Cross deposits, 18 April 1932; Aguado, 'The Creditanstalt crisis', pp. 204-5; Weber, *Vor dem großen Krach*, p. 479.

²⁵⁵ Eigner, 'Die Konzentration', p. 463.

been partial towards the bank. He was ‘ein alter Gönner’ of the BCA.²⁵⁶ As a former member of the bank’s top management, he may also have been a shareholder and was eligible for an AS 30,000 annual pension as a former director.²⁵⁷ These circumstances could have increased his commitment to ensuring the survival of the BCA, if not independently, then within the CA.

However, by avoiding the acknowledgement of the weakness of Austrian industry and the universal banks themselves, authorities and the universal banks could only postpone the banking collapse. Chapter 1 has shown that allowing the UB’s Konzern to survive within a new bank after each successive merger, contributed to the deterioration of good banks’ assets and led to the eventual collapse of the CA. Authorities’ and universal banks’ unwillingness to face losses early on led to a crisis of a much bigger magnitude than what they would have had to tackle had they admitted the losses earlier. At the same time, the political class simply had no financial and political capital to carry out a bailout early on in the decade. They did not have the credibility to borrow to finance such a transaction and they could have crumbled their delicate political support in the ensuing social and political upheaval. It was thus in the interest of both bankers and politicians to go with the flow, continue to choose the cheaper and less risky short-term solution, and avoid the moment of truth as long as possible.

HUNGARY: COMMITMENT TO AGRICULTURE

The Hungarian case is similar to the Austrian story with one key difference: instead of industry the state here was committed to supporting agriculture and the landowning class.

Hungary was still a predominantly agricultural country and within the economic union of the Habsburg Empire, it was the main supplier of primary products. However, the integrated market of the Empire was dismantled by World War I and the post-war settlement, and Hungary lost what had formerly been its natural markets. The empire was broken up by the Peace Treaties, the customs and currency union was dissolved, and the newly created Successor States of the former Empire aimed at establishing economic independence and self-sufficiency.²⁵⁸ Protectionist measures were introduced and quantitative and non-quantitative tariff walls were erected between the former Habsburg lands.

²⁵⁶ In English: an old patron. Based on: Eigner, ‘Die Konzentration’.

²⁵⁷ Eigner, ‘Die Konzentration’, p. 463.

²⁵⁸ Berend, *Decades of crisis*; Berend and Borchard, *Válság, recesszió*; Berend and Ránki, *Studies on Eastern and Central Europe*; Berend and Ránki, *Magyarország gazdasága*; Butschek, ‘External shocks’, chapter 2; Hertz, ‘The economic chaos’, 326-34.

Some authors have also emphasized that Hungary's situation was further aggravated by the fact that the country's agricultural producers were inefficient compared to other players.²⁵⁹ The customs union had protected domestic farmers from competition and ensured a reliable market demand for their products prior to World War I. All this had dis-incentivized them from improving their methods of production. When the breakup of the Empire forced Hungary's agricultural producers to compete in a global market against other, more efficient primary producers, they did not fare well in comparison. The loss of old markets and tight competition entailing subdued commodity prices were a constant threat to the livelihood of the country's large agricultural population during the interwar period.

The disarray and poverty that the war had left behind, the disillusionment with the political and economic elite in the wake of the post-war settlement, and the challenges faced by primary producers due to new global agricultural market circumstances all contributed to a very unstable political situation in Hungary right after the war. Much of the large agricultural population lived in poverty.²⁶⁰ The social upheaval was aggravated by a short-lived communist takeover in 1919. When the former imperial political elite eventually re-instated its position by 1921, it was clear that the political status quo could only be sustained if the country's agricultural sector, which employed 58 per cent of the workforce, remained afloat.²⁶¹ This goal came naturally to the political class, since most of their members, including Prime Minister Bethlen, and their supporters were large agricultural landowners.²⁶²

However, the state did not have the means and resources to improve the welfare of the agricultural sector. As in Austria, when Hungarian authorities agreed to the implementation of the fixed exchange rate and free capital flows, they also accepted that their hands would be tied by the economic trilemma. Thus from the stabilization program of the League of Nations in 1924, the state could not pursue an independent fiscal and monetary policy and could hence not freely spend and borrow. This is why the financial system, which was not bound by such conditions, gained increasing significance in the extension of political goals.

The interests of the various players of the Hungarian financial system were complex but it so happened in the early 1920s that they could easily be directed towards a dedicated support of agriculture. The financial system had two important players: savings banks

²⁵⁹ Berend, 'Agriculture', pp. 182-4; Feinstein, Temin and Toniolo, *The European economy*, pp. 24, 32-4, 64-9; Matolcsy, *Agrárpolitikai feladatok*, p. 82; Radice, 'General characteristics', pp. 23-65.

²⁶⁰ Radice, 'General characteristics', pp. 23-65; Ungváry, *A Horthy-rendszer*, pp. 118-38.

²⁶¹ The author's own calculations based on the LoNSY, 1927.

²⁶² Romsics, *Bethlen István*.

(Sparkassen) and issue banks. Sparkassen contributed approximately 20 per cent to the whole sector's total assets and their main purpose had historically been agricultural lending.²⁶³ In this regard, their primary objective coincided with that of the Hungarian state: to provide financing to agriculture. They were thus the natural intermediaries through which state intervention could support the landowning class. Issue banks, on the other hand, which made up two-thirds of the sector's total assets, had more complex goals. Some of these banks had historically been agricultural financiers, just like Sparkassen. The Magyar Földhitelintézet, the Magyar Földhitelintézetek Országos Szövetsége, the Kisbirtokosok Országos Földhitelintézete, and the Földhitelbank részvénytársaság among others, were all issue banks dedicated to agriculture and they generated somewhat less than half of the total assets of all issue banks.²⁶⁴ Their incentives were similar to those of Sparkassen and the Hungarian state. At the same time, there were other issue banks such as the Magyar Általános Hitelbank, the Pesti Magyar Kereskedelmi Bank, the Magyar Leszámitoló és Pénzváltó Bank, and the Hazai Bank, among others, which were universal banks and were predominantly industrial financiers, just like their Austrian counterparts.²⁶⁵ They were the largest players of the financial system generating well over half of the total assets of all issue banks. Based on their business interests, they should naturally have been more committed to industry than to agriculture. Nonetheless, this changed in the early 1920s and their goals could also be aligned with those of the state.²⁶⁶

Prior to World War I, the industry-focused universal banks had had industrial connections not only within the country's post-war borders but also in what later became the Successor States. Post-war animosity with Hungary's neighbours had, however, led to the confiscation or dissolution of these assets²⁶⁷ and Hungarian universal banks also rid themselves

²⁶³ The author's own calculations based on *Hungarian Compass*, 1925/6-1934/5; *HF*, 9 July 1930; *Budapesti Hírlap*, 17 May 1931.

²⁶⁴ Magyar Földhitelintézet in English: Hungarian Land Credit Institute, founded in 1863 (*Hungarian Compass*, 1912/13, p. 130; 1925/26, p. 103); Magyar Földhitelintézetek Országos Szövetsége in English: National Association of Hungarian Land Credit Institutions, founded in 1911, state-owned (*Hungarian Compass*, 1912/13, p. 213, 1925/26, p. 161); Kisbirtokosok Országos Földhitelintézete in English: National Land Credit Institution for Small Landowners, founded in 1869, (*Hungarian Compass*, 1912/13, p. 170, 1925/26, p. 131); Földhitelbank részvénytársaság in English: Land Credit Bank, founded in 1911, (*Hungarian Compass*, 1912/13, p. 211, 1925/26, p. 159).

²⁶⁵ Magyar Általános Hitelbank (*Hungarian Compass* 1912/13, pp. 140-2, 1925/26, pp. 107, 109-14); Pesti Magyar Kereskedelmi Bank (*Hungarian Compass*, 1912/13, pp. 113-5, 1925/26, p. 93); Magyar Leszámitoló és Pénzváltó Bank in English: Hungarian Discount and Exchange Bank (*Hungarian Compass*, 1912/13, pp. 159-60, 1925/26, pp. 124-6); Hazai Bank in English: Domestic Bank, (*Hungarian Compass*, 1912/13, pp. 199-200, 1925/26, pp. 148-9).

²⁶⁶ Éliás, 'A jelzálog-hitelezés', p. 22.

²⁶⁷ Ránki and Tomaszewski, 'The role of the state', pp. 7-8.

of some part of their shareholdings in domestic industrial enterprises.²⁶⁸ Further, these banks were also inhibited in increasing their industrial network because they lost their natural financing channel. Hungary, as a peripheral country, had historically been reliant on foreign capital. During the pre-war years, industrial issue banks channelled capital into the economy through their financial connections primarily in Austria. Since the customs and currency union was dissolved and the Austrian economy itself was severely damaged and trying to get back on its feet, the Viennese financial market could not re-attain its pre-war central role at the regional level.²⁶⁹ Hungarian issue banks had to find new international connections to rebuild their access to large financial markets as their formerly close connection to Vienna weakened. Therefore, in the years after the war, these institutions were in an uncertain business environment in which they were seeking to re-define their purpose. A revealing example of this uncertainty is the fact that the Magyar Általános Hitelbank's contract as the state's banker, renewed every single year between 1873 and 1918, was after the war not re-instated until 1927.²⁷⁰ Hungarian industrial issue banks hence found themselves in a vacuum in the years right after the war. This vacuum eventually came to be filled with a focus on agricultural lending.

Dedication to agriculture was hence the basis of the interwar partnership between Hungarian politicians and the financial system. Sparkassen and agricultural issue banks had already invested their resources into this sector. Industrial issue banks, which came later to the business, started to expand their agricultural lending after the League reconstruction. The whole financial sector was thus increasingly exposing itself to a highly inefficient and non-competitive area of the Hungarian economy. Moreover, they did this in spite of the fact that the land that they received as collateral for their loans was not freely tradable and foreclosures were conditional on government permission.²⁷¹ They were willing to carry on with this highly risky business because they received very strong incentives from authorities to follow this path.

Hungarian authorities implemented a number of measures through which they incentivized the issue banks to step up their agricultural lending. The *boletta* was an indirect

²⁶⁸ Szádeczky-Kardoss, *A magyarországi pénzüzetek*, pp. 40-1; Tomka, 'A magyar bankrendszer', p. 678; Weber, 'Universal banking', pp. 19-25.

²⁶⁹ Ránki, 'The Hungarian General Creditbank', 355-73; Ránki, 'A Magyar Általános Hitelbank', pp. 67-81.

²⁷⁰ HNA, file Z51, bond 56, item 832.

²⁷¹ HF, 6 Aug. 1930 and 29 April 1931; HNA, file Z6, box 2, 27 March 1931.

measure to that effect, which is often cited by the literature.²⁷² There were, however, a number of other means to achieve the same goal, which were applied earlier and were more effective.

The boletta was the government support scheme for agricultural producers to increase their ability to pay and thereby improve the liquidity of the agricultural lenders.²⁷³ The boletta was the draft issued by the government and used in the payment for cereal. The system came into effect according to a new legislation on 1 July 1930, based on which the government fixed the price at which grain had to be purchased from agricultural producers and the fixed price was higher than the actual market price. The boletta draft could be utilized for tax payments or could be cashed. The system hence compensated agricultural producers for their inefficiency and put cash into their pockets. The financial impact of the mechanism was negligible since, as Chapter 2 has shown, it did not contribute to a significant increase of the government's budget deficit.²⁷⁴ The government's spending on this system was approximately 38 million pengős between 1930/1 and 1933/4, that is, less than two per cent of the total assets of the financial system in 1930.²⁷⁵ Further, it was only introduced in 1930 when the agricultural crisis was already well under way.²⁷⁶

The Hungarian government had a number of more powerful and earlier measures to support agriculture and these assigned an active role to the issue banks. Already from 1925 the government was closely working together with the issue banks with the goal to increase lending to the sector. The Ministry of Finance endowed some of the issue banks with the right to issue debentures, a security used in agricultural financing.²⁷⁷ Some of the beneficiary institutions, the agricultural issue banks, were already owned by the state (e.g. Magyar földhitelintézetek országos szövetsége, Magyar földhitelintézet, Magyar Mezőgazdasági Hitelintézet), others were privately owned (Magyar Általános Hitelbank, Pesti Magyar Kereskedelmi Bank, Pesti Hazai Első Takarékpénztár, Magyar Leszámítoló és Pénzváltó Bank).²⁷⁸ Debenture issue was hence restricted to a few privileged banks.

²⁷² e.g. James, *The end of globalization*, p. 57, BoEA, file OV33/79, Conversation with Mr Wekerle, Jacobsson, 31 March 1931; Berend, 'Agriculture', p. 179.

²⁷³ James, *The end of globalization*, p. 57, BoEA, file OV33/79, Conversation with Mr Wekerle, Jacobsson, 31 March 1931; Berend, 'Agriculture', p. 179.

²⁷⁴ Zelovich, *Költségvetési helyzetünk*, pp. 35-9 has shown that the deficit of the boletta program was 14.6, 19.93, 0, and 3.6 million pengős in the financial years between 1930/1 and 1933/4, respectively.

²⁷⁵ The author's own calculations based on BoEA, file OV33/79, Note of conversations with Dr. Popovics, Siepmann, 12 Feb. 1931; BoEA, file OV33/79, Letter from Jacobsson to Siepmann, 4 April 1931; *Hungarian Compass*, 1931/2; Zelovich, *Költségvetési helyzetünk*, pp. 35-9.

²⁷⁶ HNA, file Z6, box 2, 28 May 1930; 18 June 1930.

²⁷⁷ HNA, file Z51, bond 15, item 224.

²⁷⁸ Magyar mezőgazdasági hitelintézet in English: Hungarian Agricultural Creditbank (*Hungarian Compass*, 1930/31, p. 172).

The Ministry was also itself actively involved in the process of debenture issues. The Minister of Finance was making attempts to induce the large banks to establish a ‘National Mortgage Bank’ or a ‘Central Mortgage Institute’ and use this entity as a vehicle for raising capital for agricultural loans in international markets.²⁷⁹ The Ministry was of the view that a centralized association of the largest Hungarian issue banks would be in a better position to raise capital abroad than would individual banks themselves. Already from 1925, the Ministry promoted this initiative and took an active part in organizing it. Further, the government also offered financing from its own resources to the association of issue banks for the placement of debentures.

As a result of all this government action, through the debentures channel 421.5 million pengős of agricultural lending was placed into the economy by 1929. This accounted for approximately 30 per cent of the total stock of agricultural lending in 1929.²⁸⁰

While debentures were already a substantial enhancement to agricultural lending, the most important support from the Hungarian government came through guarantees. From 1929, the state started providing guarantees to the issue banks in order to support their ability to raise capital. Whereas in 1928 such guarantees did not yet exist, by 1929 their volume reached approximately 150 million pengős and in 1930, 600 million pengős. In 1929 there was only one recipient of these state guarantees: the Magyar Földhitelintézetek Országos Szövetsége, a state-owned agricultural financier. Afterwards, the scheme seems to have spread to private institutions whose guarantees closely resemble that of the state-run institution. By 1930, a number of private institutions, the majority of the issue banks had noted guarantees in their annual reporting.²⁸¹ Unfortunately, privately owned banks did not elaborate on the origins of these guarantees in their annual reports. Nevertheless, from archival evidence and from the timing of their receipt, it can be surmised that these guarantees were in all likelihood also granted by the state.²⁸²

From the perspective of the financial system, these state guarantees were not only useful because they helped the banks raise more funding, but they were also essential because the loans that were financed from the capital raised through the guarantees were the financial responsibility of the state. If these loans were to default, that was a loss to the state, not to the

²⁷⁹ HNA, file Z51, bond 15, items 224-6.

²⁸⁰ The author’s own calculations based on HNA, file Z51, bond 15, item 224, A budapesti jelzálogbankok zálogleveles kölcsönállománya 1929. december 31-én; *Hungarian Compass*, 1930/1.

²⁸¹ *Hungarian Compass*, 1925/6 – 1934/5.

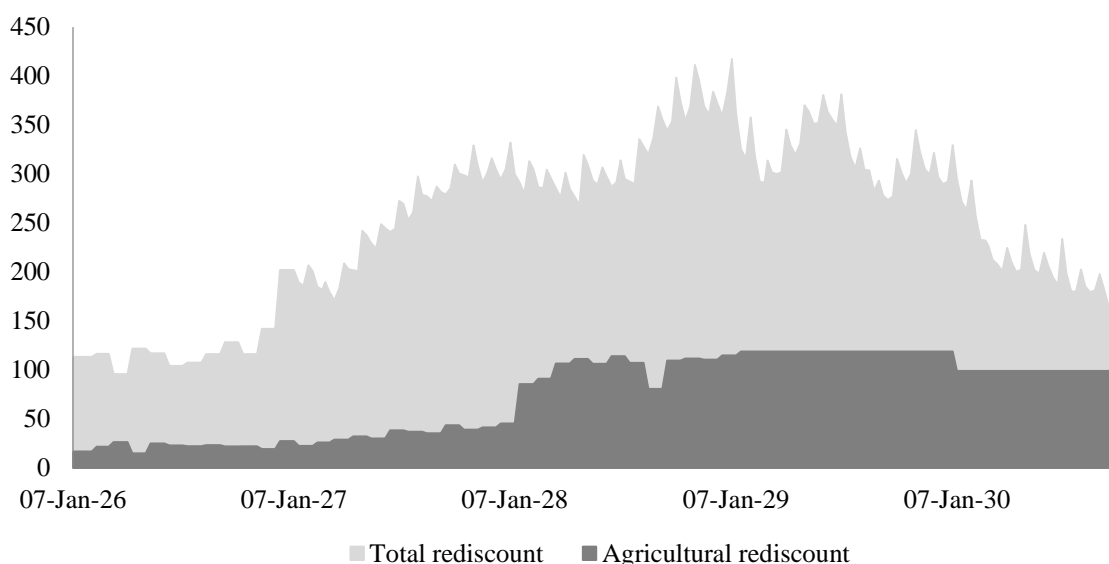
²⁸² BoEA, file OV33/79, Conversation with Mr Szcitovszky, Jacobsson, 24 March 1931.

financial institutions. According to the managing director of the country's largest bank, due to these guarantees, financial institutions 'grant more credits than would be proper from a commercial point of view'.²⁸³

The impact of the state guarantees on the financial system was enormous. In 1930, 80 per cent of new lending was guaranteed and by the end of that year 17 per cent of the total stock of lending was guaranteed. Had there been no such guarantee in place, lending would have been almost 40 per cent and 80 per cent lower in 1929 and 1930, respectively.

Further, since the biggest portion of the guarantees was granted to state-owned agricultural issue banks, most of the capital raised through the guarantees was channelled into the agricultural sector.²⁸⁴ Consequently, in 1929 and 1930 over 90 and 60 per cent of new lending was flowing to this sector, respectively. Thanks to this generous state support, by the end of 1930, even the historically industry-focused issue banks had 63 per cent of their lending towards the agricultural sector.²⁸⁵

Figure 3.1 Rediscount practices of the HNB following the 1929 currency crisis (million pengő)



Source: HNA, file Z12, bonds 60, 128-9.

Another state authority, the Hungarian National Bank (HNB) was also dedicated to promoting lending to agriculture. The evidence that underscores this is the HNB's response to Hungary's currency crisis in 1929. As Chapter 2 has explained, Hungary experienced a

²⁸³ Ibid.

²⁸⁴ Based on *Hungarian Compass*, 1931/32, p. 115 and the notes of the various recipient banks in *Hungarian Compass*, 1929/30 – 1931/2.

²⁸⁵ The author's own calculations based on *Hungarian Compass*, 1931/2.

balance-of-payments crisis in 1929. In order to protect the stability of the fixed exchange rate, the central bank restricted and restructured its discount window. Figure 3.1 depicts the HNB's discount practices following the crisis. Even though the total volume of rediscount substantially declined following the 1929 episode, the volume of agricultural rediscount stayed at the same level. The minutes of the meeting of the national bank's General Council around the period of the decision on the rediscount restriction reveal general anxiety about the performance of agriculture. Council members often emphasized that key agricultural financiers were in great need of central bank liquidity. No similar concerns were expressed in connection with non-agricultural sectors that actually came to bear the burden of the restriction.²⁸⁶

Incentivizing the financial system to heavily expose itself to agriculture had adverse consequences. The problem was that, as Chapter 2 explained, the country fell into a recession, which was driven primarily by an agricultural downturn. Already from October 1928, agricultural producers started to introduce delays in servicing their loans or defaulted.²⁸⁷ In mid-1929, a large agricultural issue bank, the Földhitelbank failed and was liquidated in mid-1930.²⁸⁸ By early 1930, 70-75 per cent of the debenture-based agricultural lending was in default.²⁸⁹ By mid-1930, issue banks could not extend agricultural loans because producers were unwilling to take them over, fearing that just as they could not service their existing loans, they would default on the new ones as well.²⁹⁰ Chapter 2 has calculated that by the end of 1930, the financial system had lost at least 88 per cent of its capital through non-performing loans and the figure for heavy agricultural lenders was 239 per cent.

From January 1931, agricultural producers started demanding that the state step in and restructure their debt.²⁹¹ When the government made a promise to that effect, even more agricultural producers stopped servicing their debt.²⁹² As Chapter 2 has explained, the situation further deteriorated around the harvest in 1931 and hence banks' heavy exposure to agriculture greatly contributed to the banking crisis in 1931.

²⁸⁶ HNA, file Z6, box 2, 22 March 1929; 30 Aug. 1929.

²⁸⁷ HNA, file Z6, box 2, 30 Oct. 1928.

²⁸⁸ HNA, file Z6, box 2, 26 June 1929; *Hungarian Compass*, 1930/31, p. 168.

²⁸⁹ HNA, file Z6, box 2, 8 Jan. 1930.

²⁹⁰ HNA, file Z6, box 2, 18 June 1930; 12 Nov. 1930.

²⁹¹ HNA, file Z6, box 2, 25 Feb. 1931; 27 March 1930; *HF*, 14 Jan. 1931.

²⁹² HNA, file Z6, box 2, 27 March 1931.

WHAT IF...?

What if Austrian authorities had not turned a blind eye to accounting fraud at the universal banks? And what if they had not helped the Boden-Credit-Anstalt and had not forced the Credit-Anstalt to absorb its competitor? Presumably, the Unionbank, the Verkehrsbank, and the Boden-Credit-Anstalt would have gone under and the Credit-Anstalt would have remained a much healthier bank than it had become after its merger with the Boden-Credit-Anstalt. Had the Credit-Anstalt not absorbed the three other universal banks, its total loss would have been not 9.3 per cent of the 1930 nominal GDP, rather only 2.7 per cent.²⁹³ It is possible that the Credit-Anstalt would not have collapsed in 1931.

Further, what if the Hungarian authorities had not decided on assuming a large off-balance sheet burden by supplying guarantees to the financial system? It is possible that banks would have made more prudent lending decisions, would have lent less to agriculture, and would not have been buried under non-performing loans by the end of 1930. Had the state not provided the guarantees, the financial system's non-performing loans would have amounted to eight rather than 17 per cent of the 1930 national income.²⁹⁴ State interference with the incentives of the financial system greatly contributed to banks' vulnerability and eventually to the crisis in 1931.

Did the Austrian and Hungarian political elite, with their weak legitimacy and lack of independence in policy-making, have alternatives? Land reform in Hungary and the taxation of the wealthy through a capital levy in Austria and Hungary would have improved the legitimacy of the political elites in the two countries.²⁹⁵ These steps, however, would have damaged the economic power and thereby potentially the political power of the members of the political elite and were hence avoided. Desperate to hold on to their power in an increasingly hostile political environment, but hands tied by the macroeconomic trilemma, policy-makers chose rather to meddle with the financial system to support economic recovery and consolidation through that clandestine channel. This was their only option if they wanted to maintain their economic and political power. Banks went along because the incentives set

²⁹³ Post-crisis loss based on Schubert, *The Credit-Anstalt*, p. 17.; pre-crisis bad debt is used as a proxy for pre-crisis loss and it is calculated by the author based on the databases of Chapter 1 where above 12x debt-to-profit ratio was assumed to be bad debt; GDP is based on Kausel, Németh, and Seidel, 'Österreichs Volkseinkommen', p. 5, and Butschek, *Österreichische Wirtschaftsgeschichte*, p. 199.

²⁹⁴ Pre-crisis and post-crisis loss are calculated based on the non-performing loan estimates of Chapter 1; national income is based on Eckstein, *National income*, Table 1, p. 14.

²⁹⁵ Bácskai, *Az Osztrák Nemzeti Banktól*, pp. 438-44; Marcus, *Credibility, confidence*, pp. 1-49; März, *Austrian banking*, pp. 318-46; 457-68.

by policy-makers had made financing industry in Austria and lending to agriculture in Hungary the rational choice.

This turned much of the banking system into a network of large zombie banks sitting over failing industrial enterprises and defaulted agricultural loans. When the house of cards built from non-performing loans collapsed in 1931, and the banking system was deeply wounded, the governments of Austrian and Hungary were left with no other option, but to break out of the macroeconomic trilemma by introducing capital controls.

CONCLUSION

This thesis has revisited the events that led to the Austrian and Hungarian financial crises of 1931 and re-examined critical questions that have so far remained untouched or unsettled by the literature. Chapter 1 has demonstrated that a domestic factor, namely exposure to the weakened national industrial base, was essential in accounting for the insolvency as well as the illiquidity of the four Viennese universal banks that failed in 1925-31. Chapter 2 has shown that the banking system played an equally instrumental role in the Hungarian crisis as monetary matters did. The evidence reveals that the country experienced a twin crisis, analogous to what Schnabel described for Germany. Chapter 3 has developed a new interpretation for the vulnerability of the banking system in both Austria and Hungary in the context of the contemporary political economy. What is the overall contribution of this critical reassessment to financial history?

The interwar gold standard system has a central role in the historiography's current interpretation of the causes of the Great Depression. The misguided policy decision to reinstate the gold standard after the shock of World War I imposed deflation on the world economy. By re-adopting the gold standard, countries tied their monetary systems together, and when the United States started introducing contractionary monetary policy in 1928, its domestic deflation was exported to the rest of the world, catalysing a global Great Depression.²⁹⁶

The historiography assigns primacy to monetary forces: countries were struggling with the 'transfer problem' during the Great Depression, that is, under the vulnerability of their balances-of-payments.²⁹⁷ In this interpretation, 1931 was the year when monetary challenges peaked and translated to first-generation financial crises, that is, balance-of-payments crises.²⁹⁸ These accounts generally view contemporary banking systems as victims of the global economic downturn and regard their role as secondary to monetary forces in bringing about the events of 1931.²⁹⁹

My research findings contribute to the existing historiography of the Great Depression by emphasizing the role played by banking systems in causing the financial crises of 1931. By studying the case of Austria and Hungary, I have shown that their insolvent banking systems were at least as important in generating the events of 1931 as monetary forces. The two case

²⁹⁶ Eichengreen, *Golden fetters*, pp. 3-38, 223-6; Temin, *Lessons*, pp. 6-40.

²⁹⁷ Eichengreen, *Golden fetters*, pp. 259-64.

²⁹⁸ Temin, *Lessons*, pp. 65-72; Temin, 'The German crisis'; Temin and Ferguson, 'Made in Germany'.

²⁹⁹ Eichengreen, *Golden fetters*, pp. 259, 264-5.

studies of this thesis have sought to demonstrate that banking systems play an integral and critical part in a holistic view of 1931. At a more practical level, my thesis contributes to the historiography on six fundamental counts.

First, the thesis brings clarity to the extent to which the transfer problem played a role in bringing about the crisis in Austria and Hungary. The analyses reveal that Austria did not suffer from this problem. Hungary did, but the transfer problem was a matter of concern only during the early balance-of-payments crisis of 1929. The country's inability to service its foreign debt was not the cause of the crisis in 1931.

In the case of Austria, the central bank's high and increasing reserve backing during the period is a confirmation of a strong currency and an uninterrupted inflow of foreign capital. These factors explain why the flight of international foreign capital did not invoke a crisis in 1929, when the Federal Reserve Bank embarked on its tightening policy. They can also account for the fact that Austria was the last to introduce capital controls among the three crisis-ridden Central European countries.

Agricultural Hungary was, however, a different case. Here the detailed account of this indebted nation's early currency crisis in 1929 and information on the national debt and balance-of-payments have been instrumental in understanding the transfer problem. Through these sources, I have shown that prior to the eruption of the crisis in 1931 Hungary did not suffer from a transfer problem, only in 1929. The Federal Reserve Bank's monetary tightening in the first half of 1928 did bring about a balance-of-payments crisis in 1929 and this significantly weakened the country's currency. The subsequent monetary tightening and the bailout money received from foreign central banks, however, kept the currency stable until 1931, and Hungary had no problems servicing its debt prior to the 1931 crisis.

The two case studies thus indicate that the transfer problem was not a general challenge across all indebted nations of the interwar period that uniformly affected each, and its impact varied in time even for those countries, which were impacted by it.

The second contribution of the thesis is that it emphasizes the crucial importance that the Austrian and Hungarian banking systems played in the crisis. Both countries had weak, insolvent banking systems throughout the second half of the 1920s and in both, the crisis erupted in the banking system, while currency problems emerged subsequently. The Austrian central bank's reserve backing was so powerful that a currency crisis could have been avoided, had the country's banking system been less fragile, smaller, and hence in less need of bailout support from Austrian authorities. In this country, the crisis in 1931 was at first a banking crisis that only later infected the currency due to increased demand for central bank support by

commercial banks, which in turn threatened the monetary system as it undermined the peg to gold. Hungary's case was different as its currency was much weaker in comparison with Austria's due to the early currency crisis in 1929. When the crisis arose in the Hungarian banking system and financial institutions started demanding liquidity from the central bank, this demand fell onto an already weak currency. As a result, not only the banking system but also the currency quickly came under severe pressure in 1931 and this brought about a twin crisis, a currency and a banking crisis occurring simultaneously. In both cases, the vulnerability of the banking system had a significant influence on the timing, the evolution, and the depth of the crisis.

Third, this account has demonstrated for both countries that the weakness of the banking system did not arise from the general economic recession but had started earlier. The Great Depression unfolded only in mid-1929 in both Austria and Hungary. However, the four universal banks in Vienna were insolvent as early as 1925. The reason for their weakness was the substandard performance of their industrial portfolio. Hungary's banking system was also insolvent as early as 1927, due to its high and increasing exposure to agricultural loans and the growing volume of non-performing loans. The vulnerability of the two banking systems was thus only aggravated, not caused, by the recession prior to 1931.

Fourth, the thesis also contributes to the historiography by adopting an asset-based approach to bank performance analysis, rather than a liability-driven approach. A liability-driven investigation runs the risk of confusing monetary problems with banking problems. A significant decline in deposits or credits, may indicate that actors are escaping from a weak bank, or, alternatively, that they are fleeing from a potential devaluation. An asset-side approach to bank analysis, on the other hand, provides direct evidence on the health of the bank. The non-performing loan estimation for Hungarian and the indirect insolvency assessment for Austrian banks have been motivated by the aim to clearly understand and quantify the fragility of the two banking systems, independent of monetary factors.

Fifth, the thesis also contributes to the discussion of bank illiquidity and whether this illiquidity was triggered by domestic or foreign actors. The Credit-Anstalt did not suffer from a foreign capital flight prior to the 11 May 1931 announcement and may not even have been illiquid before his date. After this date, however, the bank experienced a massive decline in both domestic and foreign deposits and credits. Hungary's foreign capital flight closely correlated with that of Austria and the crisis here was aggravated by domestic depositors who started their flight already months before the Austrian events became known. That is, the flight

of both foreign and domestic creditors had a critical role in the two crises as they deepened the illiquidity of the insolvent banking systems.

Sixth, and perhaps most crucially, the thesis has given emphasis to the political context and has shown that this factor is essential to understanding why Austrian and Hungarian banks had been severely weakened during the 1920s. I have shown that both banking systems were struggling under non-performing loans and that there were political factors behind the accumulation of these bad assets. The reason why Austrian universal banks did not rid themselves of such loans to their industrial network and why Hungarian banks increasingly exposed themselves to the country's failing agricultural sector was that they received incentives from their governments to act this way. The political elites running the state had their own reasons to create such incentives: they wanted to maintain their political power and ab(used) the banking system to that effect.

These findings explain why Central Europe abandoned the post-war settlement in 1931 and not a year earlier or later. In both Austria and Hungary, the timing of this decision was determined by the liquidity position of the banking system, above all else. Though insolvent for years, the largest Austrian and Hungarian banks were able to operate and serve the political purposes of their national governments as long as they had access to liquidity. When this was no longer the case and the two banking systems ran out of cash and collapsed, governments lost their only instrument for clandestine economic stimulus. Facing a disgruntled population tired of years of recession and austerity, their only remaining option was to break away from the post-war settlement. Through the introduction of capital controls and the subsequent sovereign debt default, Austrian and Hungarian authorities regained their independence in policy-making. This was their only chance to maintain the fragile political balance in their countries. In turn, their withdrawal from international cooperation and from international capital markets supported enhanced economic nationalism and the slide into political authoritarianism in both countries during the 1930s.

My findings also speak to bigger questions in the context of Central Europe's interwar history. As both Berend and Weber pointed out, World War I and the Peace Treaties had dismantled the political and the economic structures of Central Europe.³⁰⁰ Austria and Hungary were forced to embark on the challenging path of nation building. The lost war and the loss of their imperial dimensions, the continued animosity with their neighbours, economic turmoil,

³⁰⁰ Berend, *Decades of crisis*; Weber, 'Vor dem großen Krach'.

and, in Hungary's case, agricultural dominance and rural poverty, were the obstacles they had to overcome along the way. The road from war to stability was testing and during the 1920s the two countries were in 'permanent crisis'.³⁰¹ This thesis has offered an account of the permanent crisis of the monetary and banking systems and has shown that 1931 was the year when these crises peaked and ended with a hard landing. The financial crisis was the first strong signal that the institutions of the post-war settlement imposed on these countries had proved inadequate for facing up to the political and economic challenges of nation building. The financial turmoil transformed 1931 into a break with the institutional setup of the post-war period, occurring not only on the financial and economic front, but subsequently extending itself to the political arena as well. The crises in both countries turned into a deep and prolonged economic depression, which enhanced social pressures and invoked recourse to political and economic repression.

³⁰¹ Weber, 'The permanent crisis'.

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