



Newsletter from the EABH
bulletin

The European Association
for Banking and
Financial History (EABH) e.V.



2/2013



Dear Colleagues and Friends,

The year 2014 will be rich with activities. It will start with a jointly organised conference *The Challenges of International Banking Regulation and Supervision after 1945* in Frankfurt. Then we will have a New Scholars Workshop in Belfast. This year's Annual Conference will be held in Zurich and will focus on the theme of Risk Management. As usual there will also be an Archival Workshop, this time dedicated to the European Banks Confronted by WWI.

We must raise your attention to the new activity of the EABH that will launch in 2014. The EABH Working Papers Series (EABH Papers) gives scholars in banking, financial, business, and economic history and related fields the opportunity to distribute their research-in-progress.

Business technology is changing, as well as the way we preserve information. Not only future historians but today's historians will have to deal with databases which are very different from old historical archives. The problems related to data management are a focus of banking and financial historians. For that reason we organised the Summer School for Archivists dedicated to the problems of data management. Also, in this issue of the EABH bulletin there are several texts dealing with this issue.

There is no doubt that the future of the European economy will be shaped to a great extent by the relationship the EU will develop with its two main neighbouring economic areas, the Russian one and the Islamic one. In this issue we publish two texts that can help us to better understand the world of Russian finance.

As usual, we provide you with a large amount of other interesting material. We hope you will enjoy reading this issue.

As a supplement to this issue of the EABH bulletin, we are publishing a booklet "Remembering Phil" dedicated to the memory of our long lasting member, Professor Philip Cottrell.

Yours faithfully

A handwritten signature in cursive script that reads "Manfred Poik".

Contents

Paying a visit to...	2
New research	
Sergey Tatarinov	7
John Consiglio	14
Natalia Vargas Escobar	30
Data management	
J. Carles Maixé-Altés	41
Jim Gray	48
Ross Harvey	58
Victoria L. Lemieux	65
Conference reports	76
Book reports	81
<i>EABH</i> noticeboard	86
Removing the dust	96

Front page illustration: Five blocked Reichsmarks, Schrodgers Archives

Published by the European Association for Banking and Financial History (*EABH*) e.V.

ISSN 2219-0643

Key title: *Bulletin* (European Association Banking and Financial History)

Editor: Damir Jelic

Assistant Editor: Carmen Hofmann

Language Editor: Jenny Fyall

The European Association for Banking and Financial History (*EABH*) e.V.

Geleitsstrasse 14

D-60599 Frankfurt am Main

Mail: info@bankinghistory.de

Tel: 0049 69 97 20 33 09

Fax: 0049 69 97 20 33 08

www.eabh.info

The Schroder Archive

It can't be that often that the archives of not one but three banks make their first appearance together out of the storeroom and into the reading room, but this is exactly what happened in the spring of 2013 at the Schroder Archive in London. The surviving papers of J. Henry Schröder & Co., Helbert, Wagg & Co. and the J. Henry Schroder Banking Corporation are now in large part available for bona fide academic research with, of course, the usual restrictions protecting client and commercial confidentiality.

The core of these collections was assembled by the historian Richard Roberts in the 1980s in the course of his research for the book *Schroders: Merchants and Bankers* (London: Macmillan, 1992). His purpose, naturally, was to use the archival record to tell the story of the Schroder businesses: their origins, development, survival and evolution over the course of two hundred years. Once the book was published, and whilst the Schroder businesses underwent significant restructurings, the papers were sent away into long term storage in various commercial facilities around southern England.

Three years ago the time felt right for Schroders plc, now a major international asset management firm headquartered in the City of London, to take stock of its heritage. The first task was to track down the thousand or so boxes that Richard Roberts had identified three decades previously. Maybe this is what all detective work is like: a lot of methodical plodding through old data, following up every anomaly and retracing every step; and the occasional flash of insight or inspiration that gains a great leap in understanding. And some of the settings could easily have been used for a Nordic police thriller: vast warehouses on the edge of bleak coastlines; a juddering lift with rattling grilles descending to former air raid shelters deep underground; industrial parks in the drive-by zones of hard-bitten cities.

Although the process is not complete we have now reassembled the bulk of this core collection in one location and feel ready to make it accessible for academic research. Broadly speaking it consists of the papers of three firms: J. Henry Schröder & Co. (1818-1962); Helbert, Wagg & Co. (1848-1962); and the J. Henry Schroder Banking Corporation (1923-1985) of New York. The collection also includes papers generated by J. Henry Schroder Wagg & Co. Ltd (1962-2000), the entity owned by Schroders plc (1959-) and created when J. Henry Schröder & Co. merged with Helbert, Wagg & Co. Ltd in 1962.

J. Henry Schröder & Co.

The Schroder story, like that of so many banking firms in London, begins in Germany. Christian Matthias Schröder (1742-1821) was the founder of a successful mercantile firm based in Hamburg whose commercial interests ex-



Baron Bruno Schröder (1867-1940)

tended from the Baltic to the New World, with sugar a commodity of particular importance. He set up his relatives in sister firms in strategic locations, including London, where his son Johann Friedrich Schröder (1780-1852) arrived in 1800 to be joined by a younger brother, Johann Heinrich Schröder (1784-1883) in 1802.

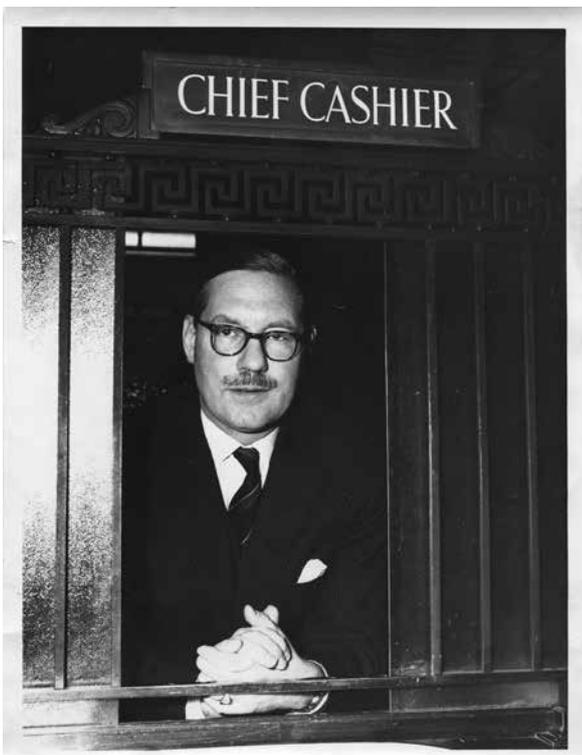
Away from the worst effects of the blockades and turmoil of the Napoleonic wars the London firm prospered. The two brothers quickly made the transition from mercantile activity to financial services, supplying short term commercial credit, through the medium of the bill of exchange, to clients known and trusted by them through the family networks in Germany and elsewhere. This was so lucrative that Johann Friedrich felt comfortable enough to retire in 1818 at the age of 38, at which point Johann Heinrich set up his own firm, J. Henry Schröder & Co., to continue the business.

By the middle of the century the firm was keen to move from the bread and butter of short term credit provision to the more prestigious business of issuing long term securities. Its first bond was issued in 1853 for the Matanzas and

Sabanilla Railroad Co. in Cuba, an island well known to the Schröders through their extensive dealings in the sugar trade; the railway was built to carry sugar from plantation to port. Other notable nineteenth century bond issues were the 1863 cotton loan for the Confederate States of America, and the 1870 Japanese customs loan, raised to finance the construction of Japan's first railway and which marked Japan's entry into the international capital markets. By the late nineteenth century J. Henry Schröder was one of London's biggest merchant banks both in terms of capital and participation in bond issuing.

The first world war was particularly traumatic for the Schröders in Britain. The senior partner at the outbreak of war, Baron Bruno Schröder (1867-1940), was a German citizen and as such the firm was liable to seizure as enemy property. The prospect of such a sizeable actor in the London money market being closed for business so alarmed the Bank of England that strings were pulled at the highest level for Baron Bruno to be naturalised within the space of three days of Britain's entry into the war. Nonetheless, the firm's huge exposure to German clients meant that it had to borrow to remain solvent and there can be no doubt that its survival could not be taken for granted.

After the war J. Henry Schröder resumed its acceptance business, moved into foreign exchange operations and began to take on some British corporate finance clients. Large scale bond issuing in London was now rarely undertaken by a single house, and the firm frequently operated with N.M. Rothschild & Sons and Barings Brothers & Co. Ltd, issuing international bonds in syndication. In 1923 the J. Henry Schroder Banking Corporation was opened in New York; and in 1926 the London firm began to offer investment management services. But, having successfully re-established business relations with clients in Germany after the war, the German Standstill on repayment of external debt in 1931 presented the firm with perhaps



Norman Totman, chief cashier, 1964

the greatest challenge to its existence. The amount of its capital frozen in Germany was such that the firm was technically insolvent, only staying afloat through the injection of the Schroder family's own funds. With the outbreak of the second world war the firm became little more than a paying agency.

Dogged persistence, or fear that the alternative would be financial suicide, meant that the firm's patience in retaining the Standstill debts on its books ultimately paid off. In 1953, following the agreement reached at the London Conference on German External Debt in August 1952, the debts were repaid with interest and the firm's balance sheet finally returned to health. With the Standstill debts cleared it became possible to turn the old partnership – which had, since 1870, included members of three generations of the Tiarks family – into a limited liability company. This was effected in 1955, and in 1959 Schrodgers Ltd was launched on the stock exchange.

With the purchase in 1962 of another City firm, Helbert, Wagg & Co. Ltd, Schrodgers acquired a talented team with extensive experience and contacts with British industry as well as in investment management. The merged firm operated under the name of J. Henry Schroder Wagg & Co. Ltd. From the late 1950s onwards Schrodgers developed its international presence, setting up joint ventures and overseas offices around the world. In 2000 the investment banking side of the business was sold to Citibank, with Schrodgers plc focusing solely on asset management from offices around the globe. The archival record is, to begin with, somewhat patchy. Statistics are collected from 1852 onwards and balance sheets begin in 1861, but otherwise the researcher is largely left to rely on prospectuses, occasional survivals and souvenirs. By the last quarter of the nineteenth century the amount of surviving material begins to increase and the bond issues and corporate finance operations of the first half of the twentieth century, for example, are solidly docu-

mented and there is extensive documentation around the management of the Standstill debts. Nevertheless, the researcher should be aware that the flesh of correspondence is largely absent from these bones.

The recent discovery of several thousand boxes of records preserved – perhaps accidentally – in 'deep storage' brings an interesting new dimension to the Schroder collection, one that is currently undergoing 'more product, less process' treatment to enable us to understand its content, value and potential for research use. We seem to have stumbled upon an extensive collection of post-war papers concerning Schrodgers' investment banking business, reflecting developments in the world of merchant banking in the City of London and beyond. The collection also looks like it could be an interesting source of records about British manufacturing concerns and other businesses, including those which are no longer in existence. Most of these records were created by the firm of J. Henry Schroder Wagg.

J. Henry Schroder Banking Corporation

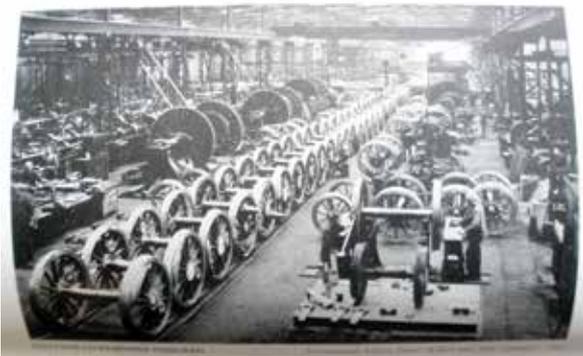
The first world war shifted the financial centre of gravity from London to New York: after the war the volume of foreign issues in New York was double that of London, and its discount market had grown from nothing to half of London's total. Schrodgers saw the opportunity to set up in business there, and were encouraged



Frank Tiarks (far left) at the Standstill negotiations, 1931

by figures such as Benjamin Strong, governor of the Federal Reserve Bank of New York, and major clients such as Manuel Rionda, the Cuban sugar baron. When, in 1923, the partners opened the J. Henry Schroder Banking Corporation they became the only London merchant bank to also own a major firm in New York.

During the 1920s, under the presidency of Prentiss Gray, Schrobanco – as the firm was universally known from its well-chosen telegraphic address – specialised in dollar trade finance, foreign exchange operations and new issues underwriting. Schrobanco found immediate success, revenues increasing from \$990,000 in its first year to \$4,000,000 in 1929. Although the Wall Street crash in October of that year left the firm virtually untouched, market conditions naturally changed. Schrobanco gradually turned to face outwards from the American market, expanding its foreign exchange dealing and marketing of US securities abroad: this did not occur without occasional tensions over the spheres of interest of the two Schroder firms. The passage of the Glass-Steagall Act in 1933, strictly separating commercial and investment banking, led to the formation in 1936 of a joint venture between the Schroder partners and Avery Rockefeller, Schroder Rockefeller & Co., to take over Schrobanco's underwriting and securities business, evolving into a venture capital operation investing in innovative American companies.



Dortmunder Union plant: wheel and axle assembly shop, c 1926. Part of the Rheinlbe Union coal and iron manufacturing consortium in the Ruhr district of Germany for whom the J. Henry Schroder Banking Corporation co-issued a \$25,000,000 bond in 1926.

In the post-war years Schrobanco provided international banking services for US regional banks, acted as a New York correspondent for overseas banks, and provided commercial finance for overseas clients. With an initial emphasis on Latin American clients, Schrobanco's area of operations expanded to include not only Europe but the Middle East, Japan and then other regions in Asia. The rather specialised nature of its operations and client base and the relative modesty of its size in comparison to the giants of the American financial landscape gradually put pressure on Schrobanco's competitive position. A variety of restructures and redirections were considered over the years, culminating in the sale of a controlling shareholding to the Industrial Bank of Japan in 1986. The archival record covers some of the most important aspects of Schrobanco's work. There are extensive files concerning business with Latin American clients from the 1930s to the 1960s, largely in Argentina, Brazil and Chile, but also Colombia, Guatemala, Panama, Peru and Uruguay. There are papers covering securities issues in the US, Latin America and Europe in the interwar years; papers of some senior directors; statistics and accounts; and the archive also has the surviving papers of Schroder Rockefeller.

Helbert, Wagg & Co.

John Helbert (1785-1861) and his nephew John Wagg (1793-1878), two London stockbrokers connected by marriage to the leading London Jewish financial families, set up the firm of Helbert, Wagg & Co. in 1848. In addition to stockbroking – the firm's principal client being the house of N.M. Rothschild & Sons – Helbert, Wagg also issued and underwrote securities. It resigned from the London Stock Exchange in 1912, causing a minor stir, when the exchange's new regulations would have stifled the firm's growing appetite for overseas issuing. Following the death of Arthur Wagg (1842-1919) the partnership was dissolved and replaced by

a limited liability company. Arthur Wagg's son, the kindly and much-loved Alfred Wagg (1877-1969), was chairman of the firm from 1922 to 1954, and under his watch the firm attracted some of the best talent in the City of London. Alfred Wagg eschewed direct involvement in business decisions and instead focussed on recruiting and motivating staff, pioneering pension schemes, generous holidays, and profit-sharing. In the interwar years his team developed their expertise in bond and note issuing and underwriting for industrial, municipal and sovereign clients in Britain and abroad; they also moved into securities arbitrage, foreign exchange operations, and investment management, setting up a number of investment trusts. Perversely, it was Helbert, Wagg's success - both in business terms and in retaining and nurturing talented staff - that led its chairman, Lionel Fraser, to think about joining forces with another City firm. The prevailing tax regime meant that shareholders could only realise the increased value of the firm through selling shares rather than through dividend distribution. And the firm was too small to satisfy all of its blossoming potential leaders once Fraser retired. The carefully structured purchase

by Schroders – the idea apparently came to Fraser whilst he was taking a bath – rewarded the Helbert, Wagg shareholders, and the newly created firm of J. Henry Schroder Wagg was large enough to retain and reward the Helbert, Wagg talent.

With a few exceptions, such as the nineteenth century partnership agreements, the archival record for Helbert, Wagg begins just before the first world war. It consists of accounts and balance sheets, board minutes, staff records, and papers generated during the course of the firm's extensive issuing and underwriting activities for clients in Britain and abroad. There are also papers for the investment trusts set up from the 1920s onwards, and post-war papers chart the development of corporate finance and mergers and acquisition work for British industrial clients.

The Schroder Archive

The Schroder Archive is based in Schroders' headquarters in the City of London. Cataloguing – and detective work – is ongoing but the archivist is more than happy to address enquiries and arrange research appointments as appropriate.

Caroline Shaw

caroline.shaw@schroders.com



Cotton Loan of the Confederate States of America, co-issued by J. Henry Schröder & Co. in 1863

Bank of England: The 'Safe Haven' for Russian Money

The safety and augmentation of gold reserves has always been extremely important for the government of every state which cares about its financial prosperity. Quite obviously, this was a problem that did not occur today, but a long time ago.

Interesting details on the topic in question can be found in the documents of the Ministries of Finance and Foreign Affairs of the Russian Empire relating to the middle of the nineteenth century. The Russian Government of that period successfully operated in international financial markets, acting both as a borrower and a creditor. The geography of these operations was very extensive and covered the major financial centres of that time, especially Paris¹, Amsterdam, Hamburg and, of course, London.

In the United Kingdom, Russia operated through Garman & Co. banking house, but in 1846 it went bankrupt. The Russian Government lost 2 562 052 silver rubbles at once². It was worth over 410 thousand pounds sterling at the current exchange rate – a vast amount of money in those days! It was a disaster.

'It may be remembered,' wrote the Manchester Guardian about this event a bit later, in 1853, when the Crimean War had just started, 'that, for many years prior to 1846, the Russian Government kept in the hands of an eminent commercial firm in London, who acted as its agent, a sum amounting to £500,000. About that time the house referred to stopped payment, when a very large amount was due to their Russian correspondents'³.

Moreover, due to steady industrial growth, England was the biggest exporter of manufactured goods to Russia. Starting from 1837, for about a decade, according to a secret report of the Ministry of Finance, Russia ordered steamships, multi-purpose equipment and other machinery from the United Kingdom worth 5m silver rubbles (approximately 1m pounds sterling). In

1846 alone, army and naval institutions of Russia purchased from the United Kingdom extra goods totalling 500 thousand silver rubles⁴. (By the way at that time silver coins almost disappeared and only paper bills were in circulation in Russia).

For the construction of the Saint-Petersburg-Moscow railway, 30 thousand tonnes of rails were contracted in 1843 from British enterprises, and up to 50 thousand tonnes the following year. In 1847, there was an additional need for about 2.1m silver rubles⁵ to pay for these deliveries,

It is clear that lots of British banking houses were eager to offer their services, however Saint-Petersburg was very cautious in choosing a new intermediary. Baron Philipp I. Brunnow, the Russian Ambassador to London, was authorised by Emperor Nikolai I to conduct the search. Because this problem was reported directly to the Tsar, Brunnow, the brilliant and experienced Russian diplomat, courtier and nobleman, was on the alert, and, as we put it today, conducted detailed market research and analysis of the financial services market.

That is why the words 'risk', 'threat' and 'disaster' were so commonly used in the archive documents on the subject in question. As it was mentioned in another top secret report to the Tsar by the Minister of Finance, Count Fedor P. Vronchenko⁶, 'following the procedures pursued by the British authorities in this regard and aimed at keeping the banking secrecy, Baron Brunnow invited the candidates to handle their sealed offers in the name of the Russian Minister of Finance, and they were willing to do so'⁷. Only six banking houses, the largest and most reliable, were presented in the final list. After that, the cost of banking services and conditions for depositing temporary free funds were examined. Careful attention was drawn to the analysis of the goodwill of candidates and their

involvement in high risk ventures. Baron Brunnow decided to add fair competitiveness to this tender and announced that the choice would be made in favour of the banker who offered the best financial support, interest rate, the lowest commission fee, and, if required, advances on the best terms (in case of necessity the interest rate for the loan should be a maximum four per cent)⁸.

As a result, all the applicants were rejected, as the risks were too high and nobody could guarantee 'that any private banking house wouldn't incur losses connected with the possible disasters, which each of them was subject to'⁹.

Tsar Nikolai I¹⁰ hesitated: was it worth it to have a permanent banker in London or could the Russian Ministry of Finance use the services of a banking house located exclusively in Saint Petersburg? For example, the ones owned by the famous Russian banker, Alexander L. Stieglitz? However, in that case, the cost of the operations abroad would rise significantly.

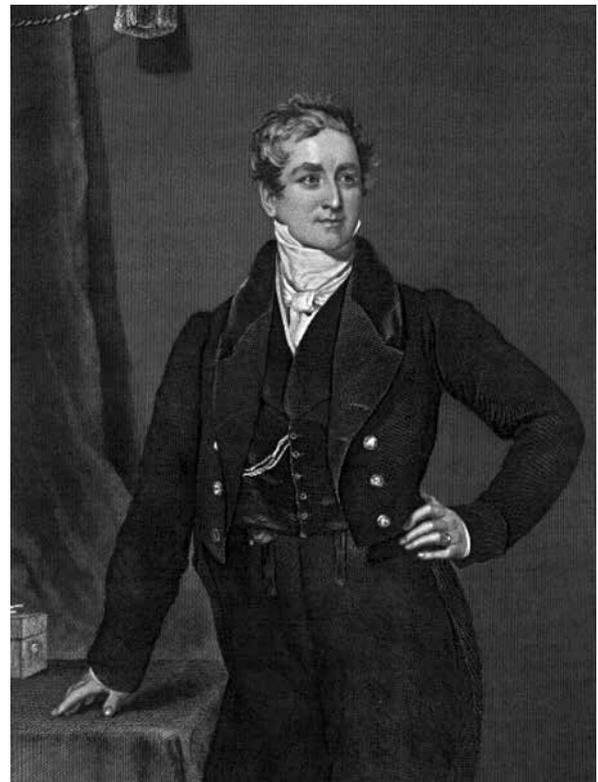
However, Baron Brunnow couldn't allow a failure in accomplishing the task he was charged with by the Emperor and turned for advice to Robert Peel¹¹, former Prime Minister and a well-known finance expert of the United Kingdom. His opinion was of great value for Saint Petersburg. Fedor P. Vronchenko specified in his letter to Nikolai I that 'Brunnow decided to turn to Mr. Peel, a friend of his, for advice, as his judgment was a reliable guidance in the United Kingdom'¹². Nikolai I met Robert Peel personally in London in 1844 and felt a great respect for him. Peel's answer was that 'No one could guarantee the solvency of a private banker'¹³ and 'plenty of commercial houses overstated income'¹⁴.

Keeping this in mind, Mr. Peel said that 'nobody could draw right conclusions on the financial standing of banking and merchant houses out of such exaggerated figures, so they could go bankrupt at a time when no doubt in their creditworthiness exists'¹⁵.

So Robert Peel preferred the Bank of England

to all private banking houses. This was firstly because it followed the strict rules which had been established for years and thus wasn't subject to upheavals of any kind. Secondly, because the Bank was closely connected with government credit, it was in the interest of the state to preserve its solvency. That's why Robert Peel himself many years ago had transferred his own money to the Bank of England¹⁶.

Baron Brunnow was interested in whether the Russian funds would be safe and sound in the case of tensions between these two nations. Robert Peel asserted that 'the Bank of England was a public institution, recognized by the Government and approved by the Act of Parliament. It was independent from the Government in its actions and its assets were inviolable. In case of tensions or break of relations between the states, the funds belonging to the Russian Government were perfectly safe. Even if any of the Ministries would like to take advantage and freeze these assets, the Bank of England could protect them ... Robert Peel supposed that in such circumstances, the Governor of the Bank



Robert Peel Portrait

would obviously close the deposit and return the money back to Russia until peace was restored'¹⁷.

As we can see, the independence of the Bank of England was one of the crucial factors for the Russian government to consider before making the final choice of who to choose as the English financial agent.

On 1 March 1847, Baron Brunnow wrote to John Benjamin Heath¹⁸ the Governor of the Bank of England:

*'Sir,
The Minister of Finance at St. Petersburg being desirous that the management of the Funds belonging to the Imperial Government should be confided to the Bank of England, - I have been requested to put myself in communication with you on the subject.*

In order that you may be in possession of the views entertained by the Minister of Finance respecting the payments and investments to be made, I have the honour to enclose a memorandum in which they are exposed in detail.

I have to request that you will communicate it to your colleagues, and, after giving it due consideration, acquaint me whether the Bank would

undertake the management of the account on the basis pointed out. I shall be obliged if, in your reply, you will state any details which you think may render the arrangement proposed more simple and concise.

Your communication shall be transmitted without delay to the Minister of Finance in order that he may consider it and furnish me with definitive instructions'¹⁹.

After a close investigation of memorandum, the deal was concluded. The Russian Government and the Bank of England agreed to cooperate on the following conditions:

The Russian Ministry of Finance, at its own discretion, could deposit with the Bank of England any sum of money, depending on its annual expenditure, approximately from 50 to 100 thousand pounds sterling. All payments, according to the instructions of the Ministry of Finance, would be made in this amount. By the rules in place the Bank did not pay interest on this money and executed payments without any commission.

Funds exceeding the above-mentioned amount would be intended for the purchase of government securities with the interest rate of 3 per cent or 3 ¼ per cent at a price from 94 ¼ to 94 ⅝ and from 96 ⅙ to 96 ¼ respectively at the current exchange rate. Both types of securities were subject to market fluctuations.

The third type of government securities, exchequer bills, didn't change in value, because they were accepted as a certain amount by the British Exchequer when collecting taxes. However, when selling or buying these securities, one could have a slight gain or loss. In this regard, a variable premium of 9-12 shillings for 100 pounds sterling (about ½ per cent) should be paid. The annual yield on these securities was 2 ¼ per cent. The Bank of England undertook to buy them and collect the yield in favour of the Russian Treasury for ¼ per cent commission in its favour.



John Benjamin Heath

When a payment exceeding the available amount in the Russian Ministry's account should be demanded, the Bank of England would sell the corresponding quantity of securities, retaining the profitability of the Russian Treasury. If the sale was obviously distressed, the Bank of England would abstain from it and settle the upcoming payments with its own funds using the securities, owned by the Russian Treasury and deposited in the Bank as collateral. In accordance with the Bank's rules, the amount of such advances could not exceed the total sum of the available securities.

The Bank could execute any payments within the United Kingdom, but not abroad, so the agency of a third banking house in London was needed to transfer the money outside the United Kingdom. In the opinion of Baron Brunnow, this was the only inconvenience for the Ministry of Finance. With regard to correspondence and accounting, the Bank of England could follow the instructions of the Russian Ministry of Finance.

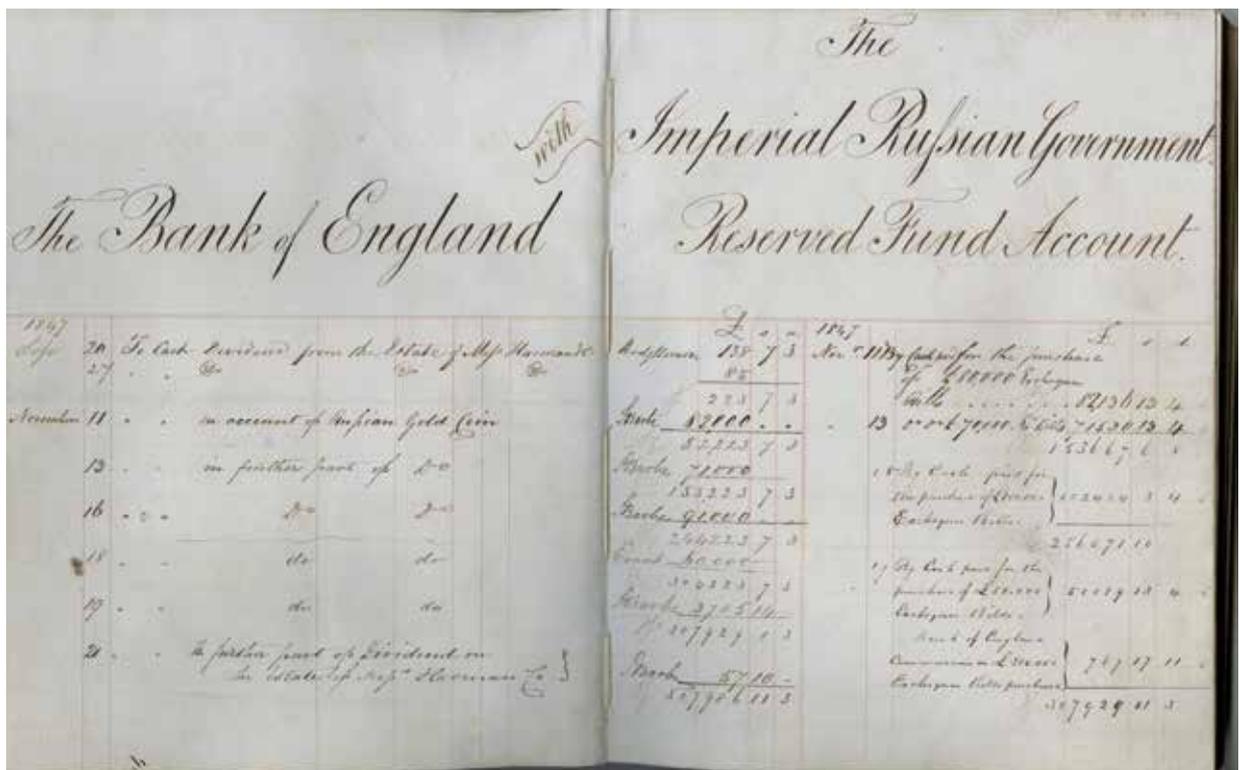
The Governor of the Bank of England confidentially informed Baron Brunnow of all these matters and assured him that he would announce

the terms of cooperation approved by the Court of Directors after receiving Brunnow's official request. However, at that moment Baron Brunnow wasn't authorised by the Russian Emperor to make any kind of public statements.

So it was decided to keep all the preliminary arrangements secret until Baron Brunnow had the imperial will either to start negotiations or to cease cooperation between these two institutions. Furthermore, if the decision was announced to the Court, it would become known among the Directors of the Bank, where one of the owners of Thompson, Bonnard & Co banking house, which had tendered for carrying out the money business of the Russian Treasury in the United Kingdom, had a seat²⁰.

The Emperor's resolution was only a matter of time and on 22 January 1847 the report of Vronchenko was marked 'to be executed' by Nikolai I²¹.

After a while, Baron Brunnow also specified in his private communications from London to Saint Petersburg that under the terms of cooperation agreed with the Governor of the Bank of England, bills of exchange, delivered according to the instructions of the Russian Ministry of



Finance, would be accepted and money could be paid without any intermediary. Moreover, the limits on the account were not fixed, so it was up to the Ministry of Finance to decide on the amount of cash to deposit.

It was still unclear, continued Baron Brunnow, if British law entrusted private persons to sequester funds available, and, secondly, how the possible breach of relations between two states could affect the business. However, the Governor of the Bank of England claimed that the legislation prohibited the sequestration of funds treasured in a public institution by a private person.

Regarding the second issue, there was no precedent of foreign funds being sequestered by the British Government. Mr. Heath and Sir Robert Peel were sure as well that the Russian government would rather return money from the Bank of England than from a private banker. Finally, all the terms of possible cooperation became clear. On 10 March Brunnow received a formal reply from the Governor of the Bank of England that the offer from the Russian party was accepted²².

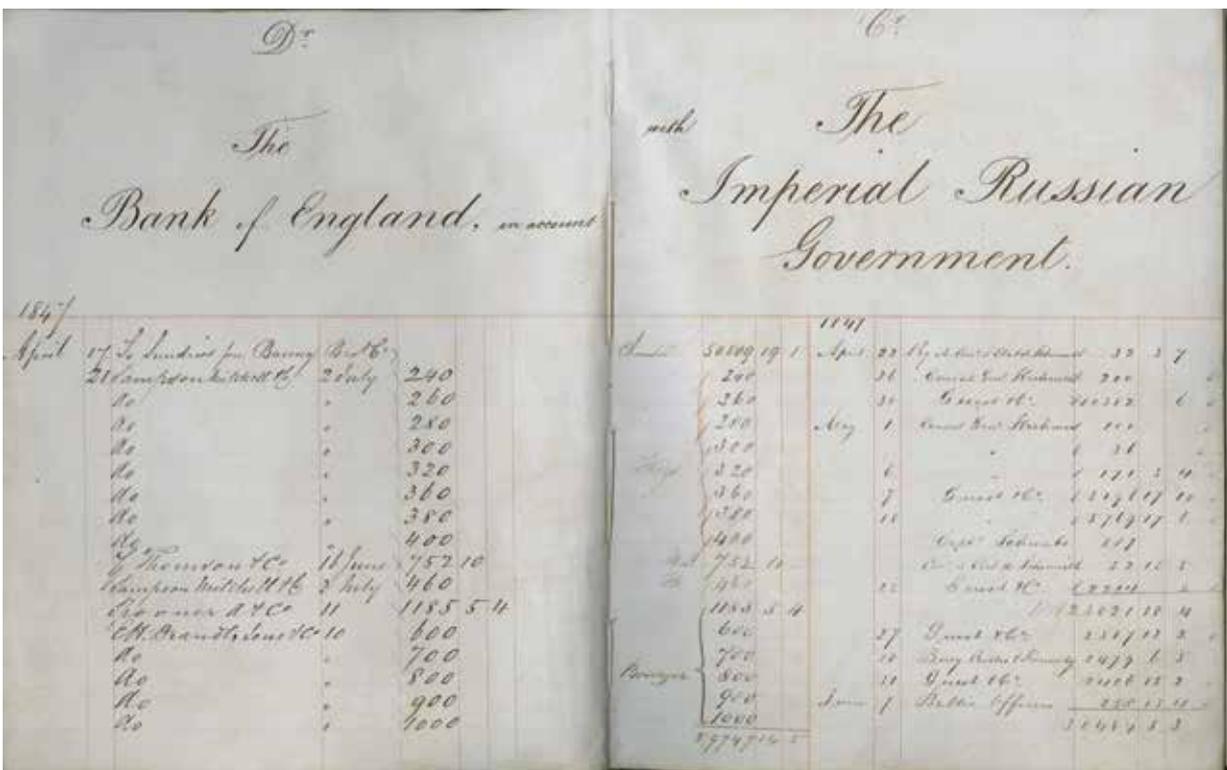
On 14 April 1847 Baron Brunnow wrote to the Governor:

'I beg to inform you, that the proposed arrangements of the custody and management of the funds belonging to the Russian Government by the Bank of England, as stated in the memorandum forwarded to me to that effect on the 10th of March, - has received His Imperial Majesty's most gracious approbation.

I have the honour to convey to you the enclosed letter from H. Exc. the Minister of Finance, announcing the consent given on his part to the above agreement. In order to carry it into effect without any delay, I take the liberty of requesting you to proceed forthwith to the necessary arrangement for opening two accounts: one for the liquid balance, the other for the reserve fund, in behalf of His Imperial Majesty's Government²³.

The terms under which 'the Governor of the Bank of England agreed to deal with monetary affairs of the Russian government in the United Kingdom were the following (according to the secret note of Vronchenko to the Tsar)²⁴.

1. The funds entrusted by the Russian Ministry of Finance to the Bank of England can be



delivered in two ways: by transfer of bills of exchange from Saint Petersburg or other cities to London or by dispatch of gold. Bills of exchange will be accepted by the Bank of England directly without intermediary of any London banker and exempted from any commission fee. Gold can be sent either in bars or in coins. The expenses of melting and hallmarking of the gold will be referred to the Russian Treasury account and the Bank of England will pay 77 shillings 9 pennies for one golden ounce.

The 'imperial' (5 rubbles Russian golden coin) will be accepted at the current rate, namely 77 shillings 8 pennies for one ounce. However, if their value at London Exchange is higher, coins will be sold by the Bank of England at the exchange quotation and the surplus will be transferred to the Russian Treasury's account. No commission will be imposed.

2. The Russian funds will be allocated as follows. Part of them will serve as a cash vehicle for current operations and will not bear interest. Its amount fully depends on the Russian Ministry of Finance. The other part, or reserve capital, will be used for the purchase of British government securities for the benefit of the Russian Treasury.

3. The following procedure will be implemented in case of due payments from the funds. Mr. Rothschild, the London banker, will obtain a credit from the Bank of England in the amount which can possibly be required before each maturity period for the payments on the coupons of the so-called second 5 per cent loan. Payments on credits opened by Russian Ministry of Finance in favour of the Russian Ambassador to London, General Consul or other counterparties can be settled by the Bank of England. Regarding the settlement for the rails delivery under the contract with Guest and Co., the Bank will be waiting for the final confirmation of the Russian General Consul. All payments of such kind will be executed without commission.

4. If the payments exceed the available cash of the account, then the outstanding sum will be

covered either by a temporary advance from the Bank of England or by sale of a certain amount of the securities from the reserve capital. In the first case, the Bank will receive reasonable interest at the average rate of that period (2 ½ - 5 per cent); in the second case, the Bank will sell the amount of securities needed to execute the payment. No commission fees are imposed on the operations of securities sale from the reserve capital.

5. When buying the securities in order to make reserve capital, the Bank of England will coordinate its actions with the Russian Ministry of Finance. [...] For fund purchases the Bank takes ¼ per cent commission, however, collecting the yields on these securities will be free of charge for the Russian Treasury.

6. The correspondence will be affected in French, which is not the common rule of the Bank of England²⁵.

After studying these terms Fedor Vronchenko, in his private report to Nikolai I, offered the following:

The Minister of Finance, finding these terms quite favourable to the Russian Treasury and mentioning that Baron Brunnow did his utmost to execute the order he was entrusted with, is honoured to ask for the Emperor's consent to start cooperation with the Bank of England on the stated terms and to transfer for the first time from five to six hundred thousand silver rubbles in bills of exchange for operational costs for this year²⁶.

Nikolai I was apparently quite satisfied and made a declaration: Excellent!

In the account ledgers of the Bank of England two new positions had been opened: 'The Bank of England with The Imperial Russian Government Reserved Fund Account' and 'The Bank of England, in account with The Imperial Russian Government'. A new partnership had started²⁷.

Sergey V. Tatarinov
Bank of Russia

Bibliography

1. S.V. Tatarinov. Histoire de l'achat des rentes francaises par le gouvernement russe dans le contexte des résultats de la politique financière d'E. F. Cancrine // Cahiers anecdotiques de la Banque de France. (Paris, 2012). №35 Pages 193-209.
2. I.S. Bliokh. Finansy Rossii XIX stoletiya (Saint-Petersburg, 1882). Vol. 1-4.
3. 'The Russian bear in the Bank of England' // Dundee, Perth and Cupar Advertiser. – December 2, 1853.
4. Materials of the Rossiyskiy Gosudarstvenniy Istoricheskiy Arkhiv (Russian State Historical Archive) - RGIA, Saint-Petersburg. Fund 583. Inventory 4. File 242.
5. Materials of the Archive of the Bank of England.

References

- ¹ For more detailed information see: S.V. Tatarinov. Histoire de l'achat des rentes francaises par le gouvernement russe dans le contexte des résultats de la politique financière d'E. F. Cancrine // Cahiers anecdotiques de la Banque de France. (Paris, 2012). №35 Pages 193-209.
- ² I.S. Bliokh. Finansy Rossii XIX stoletiya (Saint-Petersburg, 1882). Vol. 1. Page 279.
- ³ 'The Russian bear in the Bank of England' // Dundee, Perth and Cupar Advertiser. –2 Dec. 1853.
- ⁴ Rossiyskiy Gosudarstvenniy Istoricheskiy Arkhiv (Russian State Historical Archive), Saint-Petersburg – thereafter: RGIA. Fund 583. Inventory 4. File 242. Page 48.
- ⁵ RGIA. Fund 583. Inventory 4. File 242. Page 48 reverse.
- ⁶ Fedor Pavlovich Vronchenko (1779-1852) – Count, the Minister of Finance of Russia (1844 –1852).
- ⁷ RGIA. Fund 583. Inventory 4. File 242. Pages 25-25 reverse.
- ⁸ RGIA. Fund 583. Inventory 4. File 242. Pages 24-25.
- ⁹ RGIA. Fund 583. Inventory 4. File 242. Page 34.
- ¹⁰ Nikolai I, 1796-1855, the 11th Russian Emperor (1825-1855).
- ¹¹ Robert Peel (1788-1850) – politician of the United Kingdom, MP. Home Secretary (1822-1827, 1828-1830), British Prime Minister (1834-1835, 1841-1846).
- ¹² RGIA. Fund 583. Inventory 4. File 242. Pages 17 reverse-18.
- ¹³ RGIA. Fund 583. Inventory 4. File 242. Pages 18-18 reverse.
- ¹⁴ RGIA. Fund 583. Inventory 4. File 242. Page 32 reverse.
- ¹⁵ RGIA. Fund 583. Inventory 4. File 242. Page 33.
- ¹⁶ RGIA. Fund 583. Inventory 4. File 242. Pages 18 reverse - 19.
- ¹⁷ RGIA. Fund 583. Inventory 4. File 242. Pages 18 reverse - 20.
- ¹⁸ John Benjamin Heath (1790-1879) – the Governor of the Bank of England (1845-1847).
- ¹⁹ The Archive of the Bank of England.
- ²⁰ RGIA. Fund 583. Inventory 4. File 242. Pages 20-24.
- ²¹ RGIA. Fund 583. Inventory 4. File 242. Page 17.
- ²² RGIA. Fund 583. Inventory 4. File 242. Pages 154-156.
- ²³ The Archive of the Bank of England.
- ²⁴ RGIA. Fund 583. Inventory 4. File 242. Pages 156-156 reverse.
- ²⁵ RGIA. Fund 583. Inventory 4. File 242. Pages 156 reverse-160 reverse.
- ²⁶ RGIA. Fund 583. Inventory 4. File 242. Pages 160 reverse-161.
- ²⁷ At the very beginning of the Crimean war the Russian Imperial account at the Bank of England was temporary closed and the whole amount of money was transferred abroad. The Bank of England, in accordance with the agreement, acted very correctly. Russia did not suffer any financial losses in this case.

Russian Financial Services: The Privatisation versus Expediency Dichotomy

This study aims to provide an account of the highly eventful, and often convoluted, bank privatisation process as it evolved in the largest Central and Eastern European country (CEEC), Russia. This was also at the time one of the few non-EU-entry candidate countries in that part of the world.

When considering the achievements of some CEECs that have gone through the bank privatisation process, such as Estonia, it becomes clear that their success in securing relatively quick and smooth control over large swathes of their financial affairs contrasts the great difficulty that several other Eastern European countries had in achieving such a state after 1989. Due to the many competing demands on their resources some CEECs went through stabilisation attempts which, in various facets of their financial sectors, took the best part of a decade. As the USSR (and later Russia), was the hub of political and economic change in that part of the world, any comprehensive account of financial sector privatisation and development in the CEECs must analyse at some length the actual vicissitudes in that country. Several commentators consider the USSR as having been among the best performing regions in the world in the years 1925-29 in terms of industrial production and coping with indebtedness problems. The drive to industrialise placed the Soviet Union at the top in terms of state ownership in Europe. By the early 1950s there were very few traces of private enterprise left, other than in agriculture, and the soviet system of turnover taxes as the main source of state revenue was adopted in all the Council for Mutual Economic Assistance (CMEA) countries. Studies in the mid-1970s based on interviews with Soviet emigrants suggest that inequality in the communist Soviet Union was then comparable to the UK.

But in Russia various resource-intensive growth strategies were being practiced, which relied

heavily on ever-increasing quantities of labour, capital, and raw materials to compensate for the gross neglect of technical and economic efficiency prevalent there between the 1950s and 1980s. These strategies never succeeded in bringing the overall economy to performance levels emulating Western economies. The country's financial system simply implemented official five-year plans. Regardless of the perceived or planned objectives of these plans, credit would be automatically forthcoming from the state-owned banks (SOBs).

The Old Structures

In 1987 there were four banks in the Soviet Union, all owned and under the control of the country's central bank. They functioned in an economy where the value of services, including financial services, was severely underestimated in any calculations of official GDP. However, by 1992 dogmatic central planning objectives had vanished, and more than 2000 commercial banks had sprung up, with Russia alone having 1500 (500 of them in Moscow). Total commercial banking capital doubled from 43bn roubles (\$330mn) on 1 January 1992 to 76bn roubles (RUR) on 1 May the same year.

Meyendorff and Snyder (1997) insist that Russia was the only CEEC where, after reform processes began, de novo entrants established significant presence in the national banking system, even if state and former state banks had more than 30% of banking assets. In contrast the banks hived off from the monobank and former specialty banks controlled 80% of total national assets in the Czech Republic, and 60% or more in Hungary and Poland.

The old Soviet approach had been to create specialised banks for each of foreign trade, savings, agriculture, and two commercial banks from its monobank (one for heavy industry and one for services). When the USSR was disman-

tled Russia inherited the same structure, retaining those branches within its territory.

Abarbanell and Meyendorff (1997) analysed the privatisation of the commercial bank for light industry, Zhilsotsbank, and the subsequent creation of Mosbusinessbank, the privatised bank that inherited most of its assets in 1961, but with reserves of only 2% against its loan portfolio. Large state-owned enterprises (SOEs) and organisations had been its original shareholders, and one view was that privatisation did not mean much by way of methods of operating or of bottom-line improvements.

The IMF puts the number of new banks established in Russia between 1992 and 1996 at over 2500. But no fewer than 110 were closed in 1994, and a further 96 in the first eight months of 1995. Official estimates of loan arrears were 40% of total credit to the private sector at the end of 1995. The structurally weak banking system was anything but efficient in the mobilisation of savings, and it had limited ability in intermediating these towards private sector investors. Many of the banks only focused on short-term investments in foreign currency and government securities, as we consider further on.

The 1995 banking reform which separated commercial and central banking activities failed to give Gosbank (the central bank) the necessary independence to contain overall credit expansion. A modest squeeze on enterprise credit was insufficient to prevent a massive build-up in firms' liquidity as transfers of profits to the state budget declined. While many firms revelled in the stock-piling of materials and other inputs, in new investment projects, in hoarding, and (in the case of exporters) in retention of foreign exchange earnings, at the official level a fundamental loss of control over the domestic economy resulted.

By the time that perestroika had evidently become a failure (around 1990), and hyperinflation ran riot after price reforms in 1992, the structure and role of the banking sector at the

heart of financial markets was both crucial and problematic. Russia and other countries in the Commonwealth of Independent States (CIS) which had implemented voucher privatisation programmes failed to account for the behaviour of insiders (manager-owners). By stripping assets from firms they owned, it was like these insiders were stealing from one pocket to fill the other.

While a few of the banks that sprung up were genuinely private, many were not. The largest, Rosselkhoz Bank, the Russian collective farm bank, was the former state agricultural bank under a new name. Most ministries set up their own banks. The Young Communist League established a very active financial group, Menatep. The All-Russia Exchange Bank had a former parliamentary spokesman on the board, and held meetings in the country house that had belonged to Stalin's police chief.

Whatever their political connections the banks were closely tied to state enterprises. Four-fifths were set up by one or more state enterprises, which typically provided a bank's founding capital and held shares. Avotaz Bank, for example, was established by the company that produced Lada cars. These banks did not strengthen enterprises, as was the case with German or Japanese bank-industry linkups, they only provided cheap loans. The Russian experience then of dealing with poor loans – as with bank recapitalisation – was distinct from that of other CEECs: it was generally one of long delays in their official recognition. Because enterprises faced soft budget constraints at the time bank ownership transfers occurred, enterprise loans were effectively guaranteed by the government, and were not treated as a balance sheet problem.

Contrary to capitalist economies' practices, where most banks obtain funds through short-term deposits and lend it long term, in Russia long-term capital (equity and official loans) made up a large proportion of the new banks' liabilities. Loans that matured in six months or

less accounted for more than a half of their total assets in May 1992, and any long term loans for only 3%.

Russian households preferred to keep their money at Sberbank, the old state savings bank which held RUR 431bn of household deposits in July 1992, whilst the other commercial banks held a total of a mere RUR 8.2bn. Even if the new banks were to be considered as having started to take in deposits from the beginning of 1992, and Sberbank's deposits increased by 15% in nominal terms, it appeared unlikely that the former would increase their share significantly. Many of them did not accept household deposits, and those that did would not make loans to individuals.

Cash, Credit, and Liquidity

On the corporate side another old Soviet legacy was the fact that cash was not legal tender for all transactions in Russia; the banking system could not freely convert notes and coins into bank money, and vice-versa. Money used by enterprises circulated in two separate circuits. Enterprises held deposits at the commercial banks, and crediting and debiting between such accounts would settle purchases and sales between them. When cash was needed, for example to pay workers, they were supposed to get it from separate official pools. This separation of cash and credit – another weird product of Russian central planning – more or less worked when there were only a few banks, but turned into a proper mess when the number of banks grew. Companies resorted to bartering, and delays became enormous as the central bank still required that many transactions had its approval.

Combined with loose monetary policy, the dichotomy between cash and credit had a particularly pernicious effect. Banks did not allocate credit as they thought best; instead they became conduits for cheap loans from the state, and depended on cheap credit themselves for capital. When the country's price system was

freed, and monopoly holders' prices shot up, and consumers bought far less, the system went under. Businesses ran up trade debts approaching RUR 2 trillion to blithely maintain their outputs.

Gosbank, and also Sberbank, responded by offering cheap credit to the commercial banks, and through them to enterprises. Studies by Johnson, Kroll, and Horton (1992), and by Sachs and Lipton (1992) show how these credits became a sizeable part of commercial banks' liabilities. The higher interest charged on them (from 20% to 80%) was however still far below inflation rates. Furthermore, part of the deposits of enterprises, which made up another part of bank liabilities, was financed by earlier quasi-official credits. Commercial banks became ever more closely tied to the heavily indebted enterprises that owned them, and survived only because of cheap government credit.

The toughest element in these financial services sector reforms probably lay in the fact that the weak state part of the banking system required sometimes temporary, and sometimes long, injections of liquidity. This pushed towards market segmentation, and in August 1995 contributed to a temporary collapse of the inter-bank market. But by then the Russian Federation had already accepted privatisation as the centrepiece for overall structural reform of the economy. As of March 1994 more than 60% of the industrial workforce was employed in privatised enterprises, and more than 12,000 enterprises had been privatised via voucher auction by June 1994, when voucher privatisation was brought to a close.

That still left several large and medium-sized enterprises to be privatised through either cash auctions, investment tenders, or other special arrangements. In contrast to privatisation in the Czech Republic, in Hungary, and also in Poland, the transfer of bank ownership in Russia occurred through informal management-led processes that affected the fundamental organisational structures of the privatised banks. For

example, the only step taken by the Russian government in the privatisation of Zhilsotsbank was transferring control to bank managers and to Gosbank's regional offices.

Management-led Privatisation

Managers and local officials themselves often determined both the configuration of the banks to be privatised and their future structure. The initial transfer of control rights to managers was considered by Meyendorff and Snyder (1997) as the most important aspect of the privatisation structure in Russia. They maintain that although, technically, privatisation of Russian banks did not occur until the SOEs that owned them were privatised, there was actually little centralised control of enterprises at this time ensuring a clear transfer of control rights away from government.

Management-led privatisation in Russia shared important characteristics with voucher privatisation. Political considerations were certainly at the forefront. To ensure that coalitions between managers and local government officials would not block efforts to privatise, transfer of control rights specifically to them was the only apparent method.

A second consideration was speed. The founding of Mosbusinessbank, and the commercialisation of Zhilsotsbank, took place inside a year but – contrary to, for example, Komerčni Banka in the Czech Republic – the central government withdrew completely from ownership. This, in a sense, was real privatisation, but still came with problems. For example, Mosbusinessbank became the most independent of government control despite the fact that its shares were sold to SOEs. Management-led privatisation resulted in a very different structure, in which the largest shareholders owned a 9.4% stake in the bank. The top management was self-selected, and it in turn selected the new owners of the bank. This process ensured that the managers had little accountability to shareholders. Further share issues of Mosbusinessbank bank

stock, leading to an even more diffuse ownership structure, solidified the lack of accountability. The combination of incumbent management and client ownership also led to substantial connected lending, even if the effects were difficult to measure.

External focus on what was happening in the Russian economy was inevitably always present. The progress or otherwise of privatisation in Russia was carefully watched, for example, in the highest levels of the US administration. In 1993 US President Clinton proposed that the G7 set up a multi-year \$4bn fund to help Russia privatise its large SOEs. Other G7 allies however toned the proposal down from a multi-year programme to one covering only an initial 18-month period, and to be only the initial phase of a possibly longer term project.

Foreign Presence

In each month between June 1993 and April 1994 Russia sold around 900 companies with an average workforce of 1100, and by April 1994 privatised firms were employing more than 12 million people. The first stage of Russian privatisation was planned to finish on the 1st July 1994, and its methodology had provided for the entire population to be given free vouchers which could then be swapped for shares in state firms.

After April 1994 the new plan was for state sell-offs to move up a gear with offers to foreigners of blocks of shares in privatised firms.

The new privatisation approach stimulated a rise in voucher prices, and the banking community soon became aware of growing foreign interest in Russian equity markets. But this was now a highly convoluted new privatisation plan.

The reasons why Russian privatisation was characterised by lack of effective internal governance at so many of its levels are several. The lack of foreign participation in bank ownership itself must rank as a main reason. Secondly, it took a long time to develop the institutional structures that could exert independent

governance. In their absence, inefficiency, and 'distortions, mistakes, and abuses running into thousands of millions of rubles', were commonplace. Thirdly, the Russian method of privatisation did not provide for any mechanisms of independent governance by private investors, nor any preponderance of 'remnant' dominant government share roles. Fourth, insider control of the banks remained an ongoing problem, increasing the importance of external market discipline.

Meyendorff and Snyder (1997) claim that in Russia, as opposed to elsewhere in Eastern Europe, product market competition was an alternative mechanism of internal disciplining of Russian banks, providing a source of managerial accountability. The IMF described the situation as one where 'competition exists, but the market is segmented. The legal infrastructure is weak and, in some cases, contradictory'.

By late 1995 to early 1996 the Russian banking system started to face shake-out time. It was both domestic realities as well as external pressure (e.g. the 1995 IMF-backed stabilisation programme) that made it clear that most banks (the total number at May 1996 stood at 2,578) were too small to be viable. Two-fifths had less than RUR 500m (\$100,000) of capital, and even the larger banks were small by Western standards. Most made their money in the early spells of the reform, when high inflation made speculation on the foreign exchange market easy and profitable, or by channeling central bank credit to favoured industries.

The de novo banks had easy access to central bank lines of credit, and until 1995 the Russian government was still channelling direct credits to enterprises through the banking system, disproportionately, though not exclusively, relying on former SOBs. While banks initially expected benefits from the opportunity to channel government funds, many enterprises ultimately defaulted, significantly aggravating the problem of new non-performing loans.

For all its faults the Russian privatisation pro-

gramme that was then being pursued was described in Western European media as one of the most radical and far-reaching in the world. It was also held to still be on course despite threats made in January 1995 by the minister of privatisation to renationalise swathes of state industry. Significantly Vladimir Polivanov was sacked as privatisation minister in that month and his place taken by Pyotr Mostovoi.

Gosbank Protection

In the summer of 1995, Gosbank announced a programme for assisting banks that held non-performing loans of enterprises that had lost access to government funds and inter-enterprise credit. The programme called for government bonds with eight-year maturities to be issued to banks to cover loans for which the government was primarily responsible. There are no data available concerning which banks received these bonds, and what percentage of their portfolios were covered. Later large and unexplained increases in government liabilities appeared in the balance sheets of Mosbusinessbank, and these deposits were conjectured to be evidence of informal government support in return for the bank's cooperation with directed credits. The IMF could have been referring to these when it commented on 'an unknown contingent liability that is expected to be significant'. 1995 was indeed a key year. Gosbank was walking a veritable tightrope as it implemented some terms in the IMF programme: weak banks being pushed to the wall while avoiding a total systemic breakdown. A commitment to Rouble stability through an exchange-rate band launched in July 1995 had a dramatic effect. The foreign exchange market dried up, and the ensuing liquidity crisis by August had pushed as many as 430 financial institutions (one fifth of the total) into severe trouble.

Russian banks had lived on easy money, and when this disappeared many started to fall. Their earnings mostly came from treasury bills, mostly zero-coupon bonds (GKOs) where real

annual yields of up to 100 per cent had been hedged by the Rouble corridor. Government securities made up only 10 per cent of total bank assets, but by some calculations produced as much as 80 per cent of their profits. Such wind-fall yields and interest rates halved over 1995-1996. A particular aspect of the situation was that whereas treasury bills only accounted for 3.3 per cent of GDP – a fraction of domestic levels in Western Europe – interest payments were one of the largest expenditure items on the federal budget.

The pace of development of prudential regulation and supervision in Russia was slow. This factor has to be considered alongside the other reality that the benefits of promoting competition came at a severe cost. Bank failures, fraud (especially with many cases of weak accounting standards), and continuing government guaranteeing of household deposits in Sberbank, were factors often juxtaposed to government allowing competition in banking. Gorton and Winton (1996) argue that the socially optimal level of instability in the banking sector resulting from privatisation and rapid entry conceived as possible boost to competition, is non-zero and needed to be quite high in Economies in Transition EITs to ensure adequate capital flows and efficiency.

Many of the Russian banks did not operate as financial intermediaries in the Western European sense (i.e. taking deposits and making loans) at all. Indeed data on the extent of financial intermediation, and on commercial debts, shows significant differences right across the CEECs spectrum. Even by EIT standards, commercial lending was low: much of what took place was only insider lending. Capital was thus not being put to efficient uses, and this despite high savings rates and decent investment rates.

A slow consequence of this was that some banks having the accounts of firms with good cash flows and no long term debt, started to take stakes in industrial enterprises. Early movers following the Japanese keiretsu networks

fashion included Menatap, Unexim, Alfa Bank, Promstroibank, Bank Rossisky Credit, Incombank, the Most Group, and IMB. The EU reported that some 27 financial-industrial groups of this type, employing 2.2 million people and accounting for 10 per cent of Russian GDP existed around 1996, and they were structured into horizontal, vertical, and radial format categories.

Another issue which one might even consider as strange was that cases of defaulting non-Russian borrowers from Russian banks started to appear. Russian banks were owed some \$35mn to \$40mn by a big US-based metals trader, AIOC, which in mid-April 1996 was forced into US Chapter 11 bankruptcy hearings. Tokobank was one of the Russian banks affected but AIOC had also suffered losses in the Central Russian republic of Kazakhstan before the nationalisation programme freed new owners from responsibility for old debts.

As more non-Russian entities sought involvement in business activities in an economy where by 1995 most prices had been decontrolled, where both interest and exchange rates had become market determined, where many SOBs had been privatised (with 90% of all SMEs too), expressions of intent to get tough with non-Russian borrowers were inevitably made by Russian banks.

Foreign investors in Russia were inevitably of various breeds. However, even as the banking sector remained a minefield of distressed and mistrusted institutions and uncertainties, the external perception increased of the potential upside once the Russian economy started to recover. Temptations to such parties kept being made by both the regulatory authorities (although these were often contradictory in nature) and by the banks themselves.

The Central Bank attempted to quell fears about risky and fraudulent operations through regulations specifically designed to reduce moral hazard problems sourced in old client-owner relationships, as well as with differential regulating:

such as limiting the size of individual loans to a small fraction of paid up capital unless otherwise approved by the Gosbank itself.

The Russian banks on their part issued paper intended to tempt foreign investors to the economy. Late in 1966 Inkombank, the country's fifth largest bank, was the first to launch an American Depositary Receipt (ADR) which would allow US investors to buy shares through certificates issued by the Bank of New York. The ADRs were to be based on about \$20 mn in underlying equity. Two other big Russian banks, Menatep and Vozrozhdenie, later followed with similar issues.

But Russian banks still had on their hands the big problem of attaining external respectability before privatisation, as was already happening elsewhere in the CEECs, could be entertained. The murkiness of their accounting standards made it hard to separate good from bad.

Policy Evolution

Russian privatisation policy may be considered as having moved through certain clearly identifiable stages. It was first more of a political than an economic process, designed to remove the overwhelming and often incompetent state from the economy, and create a new class of private owners, in a belief that in a competitive market they would 'either use or lose' their assets. When he first masterminded the selloffs in 1992 First Deputy Prime Minister Anatoly Chubais, privatisation's first national guru in the country, sought only to shift state property into private hands as soon as possible.

In the subsequent post-1996 phase, when mass privatisation through vouchers had given way to shares-for-loan schemes, two new trends stood out. Government was seen as wanting to score voters' points by ensuring that financial and industrial groups would pay enough to cover the huge backlog in salaries and pensions payments. And foreign investors were also often excluded from certain privatisation deals, in the process limiting the degree of competition.

Foreign banks were a soft target for the government in its keenness to show its supposed faith in domestic bankers. In May 1997 overseas banks operating in Russia were hit by a set of half-baked restrictions:

- Minimum share capital of majority foreign-owned banks was doubled to to ECU 10mn (\$8.9 mn);
- Quotas on Russian staff and management were raised to 75 per cent and 50 per cent respectively;
- Foreign top officers of such banks had to learn Russian.

In impact terms these were nothing but cosmetic measures in a market where the Russian banks were feeling the pinch of a gradually stabilising economy, which in some respects may have suggested that it was effectively moving on without them. The mainstay of most banks, the sovereign bond or GKO, had fallen from annual returns of nearly 20 per cent in the run-up to the 1996 presidential elections to around 30 per cent.

When government started to clamp down on banks that would routinely park funds received for payments of wages and pensions in GKO's (treasury bills) and then repeatedly delay payments for months at a time, many of these banks found themselves pushed into diversifying into other activities, such as corporate lending, where foreign banks already in the market had the means, even if often not the will, to dominate.

Gosbank protectionism was thus explainable, even if not economically wise. And this because the foreign impact was not conspicuous. Overseas capital markets made up only 4 per cent of the Russian sector's total. There were only thirteen wholly foreign owned banks in Russia in 1997, and nine 50 per cent foreign-owned joint venture banks. Nine overseas banks had pending applications for licences, including Germany's strong Deutsche and Dresdner banks, and Poland's Bank Handlowy. Even if they were to be given such licence the foreign banks' share

of the sector was estimated to still be less than 7 per cent.

Western banks in Russia also had to operate in money and exchange markets that hardly offered exceptional prospects. At the onset of reform the rouble gyrated crazily, and subsequent sharp real exchange rate appreciation to beat inflation presented many with a windfall. But the latest imposition of a corridor for the currency brought a shift towards the sovereign bond market where returns to foreigners were capped at 30 per cent, and all deals by foreign banks had to be carried out through special accounts with the central bank.

So buying a large stake in an existing Russian bank generally remained too brave a crossing for most foreigners. The IMF showed system in the country when it expressed regret at this situation. In 1997 there were only twenty Russian banks, audited by one of the big six international accounting firms, who would have met international standards, and none of these were disposed towards giving up control to foreigners; which was in reality a situation that ran counter to the more stable banking systems in developing markets where in fact a large number of banks, including foreign-owned banks, regularly took deposits and lent to corporations.

1997 was also a year when financial worries ricocheted around the world. Just when some early signs were appearing that Russian equity and debt markets had begun to plug with some success into global capital markets, with the economy finally poised for growth, both of those markets crashed, even if not to the extent of South-Eastern Asian markets. Russia was running a current account surplus when this happened, and the rouble did not appear to be wildly overvalued. The level of commercial bank borrowings was still extremely low, and asset valuations remained undemanding by international standards.

But the reactions of external markets to the global situation inevitably impacted on Russia. Asian investors cut their exposure to the

country. South Korean banks stopped being big buyers of treasury bills (GKO's), and repatriated money to meet margin calls at home. Other foreign investors held back from increasing their weightings in Russia, and this put upward pressure on interest rates and downwards pressure on the rouble in a commercial banking sector heavily exposed to the foreign exchange market, and increasingly exposed to equities.

Banks, and other borrowers, in a situation where it was practically impossible to raise substantial sums at home, faced more expensive borrowing when tapping international capital markets. Thornhill (1998) held that the chances of Russia's stronger banks shoring up their finances by raising additional funds from abroad were also damaged by the uncertainty surrounding the forward contracts signed by many commercial banks.

But this phase did not last long. IMF-assisted debt rescheduling helped to change external perception to a large extent. On December 2nd 1997 Russia and its Western creditor banks finally signed a debt rescheduling of \$32.3 bn of debts inherited from the former Soviet Union. And as foreign investors returned to the country's paper many Russian banks gave tentative signs of beginning to extend their time horizons on the basis of economic stabilisation.

By 1998 the private sector accounted for an estimated 70 per cent of officially recorded Russian GDP. The post-1995 privatisation process had proceeded at a slower pace, and was still being criticised for alleged low prices paid for companies, and for the lack of transparency in procedures. When banks became major corporate owners the predominance of monopolistically structured industries often implied minimal corporate discipline on managers.

A bankruptcy code updated in 1998 threatened far-reaching – in some cases disastrous – implications for some 800,000 of Russia's two million companies, and a large number of the remaining 1550 banks were being considered as unlikely to survive what was effectively a new

financial round. Early casualties in September and October 1998 were The Imperial Bank and SGS Agro.

Russians still held an estimated US\$ 5 billions in foreign currency cash, indicating their continued lack of confidence in the country's banking system. Government was still giving signs that – in its own often ambiguous manner – it was set on further reconstruction of the banking sector. The authorities encouraged troubled banks to conclude contracts with the government-owned Sberbank, thereby transferring to it clients' deposits even when Sberbank already held some 80% of private deposits.

Systemic Collapse

On the 17 August 1998 a wide-ranging collapse of the system reached a high point. The banks that fell in its wake included some important ones, such as:

- Tokobank, one of the country's largest commercial banks, which was liquidated in a manner that the European Bank for Reconstruction and Development (EBRD) described as 'not respecting creditor rights, not respecting shareholder rights, a model of how not to conduct a liquidation'.
- Incombank, fifth largest on assets up to only three years previously, and whose trading licence was withdrawn by Gosbank, and an interim administrator appointed.
- Imperial Bank, whose creditors requested bankruptcy proceedings to be instituted against it.

From close to 1600 banks in 1998 the number of banks in the Russian Federation fell to 1390 by August 1999. Share capital of the system fell to RUR 75.8bn (approx US\$3bn), or half of its pre-crisis level by mid-1999. The World Bank reviewed 15 of the 18 largest banks and pronounced them insolvent. Their reputations, partly as a result of their behaviour in the wake of the crisis, were considered as beyond repair. Late in 1998 an Agency for Reconstructing Credit Organisations (ARCO) was cre-

ated. Legislation on bank bankruptcies, and on the restructuring of banking organisations was adopted in February and July 1999, and through it ARCO was empowered

- to accept or refuse banks for reconstructing referred to it by the central bank,
- to assume full control over banks, to disenfranchise shareholders, to initiate writedowns of capital, and to impose write-downs on creditors,
- to restructure institutions in the interest of depositors and creditors, including transfers of assets and household deposits,
- to reverse any previously effected asset-stripping.

The government's default on its domestic debt on 17 August 1998 had effectively wiped out a large proportion of the banking industry's assets overnight. At a stroke in fact even inherently healthy Russian banks had become insolvent. Despite the creation of ARCO, reconstruction of the banking system was slow, inefficient, and to a considerable extent quite uncontrolled.

The central bank, although empowered to act in protection of bank creditors (depositors and others), and to ensure that bank shareholders absorb losses, continued to show reluctance in initiating bankruptcy proceedings. Even as further legislation amending banking laws, the civil law, and the law on pledge, was planned for October 1999, aimed at having increased transparency, strengthening of creditor rights, and specified responsibilities during a bank liquidation process, the central bank's often ambiguous or inconsistent approach continued to seriously impair the efficacy of the regulatory and supervisory system.

While the IMF was critical of the central bank's lack of coordination between on-site and off-site supervision, and an absence of restriction on various elements like insider lending, correspondent banking, or foreign exchange exposure, the EBRD rebuked the Russian government 'for failing to restructure the crisis-torn banking sector'. As holder of a \$35m equity

stake in Tokobank, in an attempt to help that institution the EBRD found itself the victim of predator action by an unnamed significant Moscow-based bank with a large shareholding in the bank. The EBRD's effort to defend its rights in the courts were largely frustrated.

The chorus of highly critical voices of Russia's banking sector was a strong one. It included

- The World Bank, which estimated that the country's top 30 banks had between \$10 bn and \$15bn of negative equity.
- Prime Minister Yevgeny Primakov, who vowed to crack down on Russia's 'banking bums', and promised to remove licences from troubled banks and open up the sector to strong foreign operators.
- Hoover Institute analysts Michael S. Bernstein and Alvin Rabushka (1998), who wrote that 'the incestuous relationship between government and business and the failure to develop an independent commercial banking sector, had been a major cause of the ineffectiveness of Russia's economic reforms'.
- The staff themselves of the banks, who often were victims in terms of long unpaid salaries, appallingly bad working conditions, or even violence.

When on the 18 May 1999 the central bank decided to revoke the licences of twelve commercial banks, including the once mighty Menatep and Unikombank which had the largest branch network in the area outside Moscow, this was described as 'promising action on the hardest area of government choices'. That announcement put an end to a mild banking panic initiated in earlier years when prime minister Sergei Stepashin had said that six of Russia's biggest banks would be stripped of their licences. When he did not specifically name which these would be his threat prompted a run on large private banks.

When the central bank eventually did do this it both eased worries as well as helped to plug a common tax-evasion scheme. A company with a tax bill would pay the managers of a defunct,

but still licensed, bank a fifth of its tax arrears, the bank pretended to have received the full amount, but failed to make the transfer to the government. In 1998 Russia's supreme court had ruled that in such cases the bank and not the taxpayer, was liable to the tax authorities. After that the banks' debts to the government increased more than tenfold to RUR 15 bn.

The government made several efforts to curb the abuse. For example, in April 1999 the tax ministry banned companies from opening accounts with banks that had been holding back tax payments, but closing down just twelve banks was not seen as having much success in shutting the loophole. Some estimates put more than one hundred banks into technical insolvency, and more bankruptcies were seen as inevitable, not just to improve the health of the banking system, but also to improve tax collection.

The banks that crashed in the wide ranging collapse of 17 August 1998 – leaving \$15bn in unmet obligations – were never however properly buried. Fraud, asset-stripping, cosy accounting practices, continued propping up of banker friends at home even in the face of outright inability to meet foreign debts: this dire state of affairs showed clearly that the Russian authorities had neither the will nor the skill to clear away the wreckage by allowing the bankruptcy of the most exposed banks. Instead many of the bigger banks were allowed to shift assets into new shells and carry on trading, albeit at a much reduced level.

Uneximbank was an example of this, and in thus acting pioneered what passed for privatisation in Russia. After the crisis it had seen its corporate deposits drop by 63 per cent, and in late February 1999 it became the first Russian bank to default on a Eurobond; by May 1999 it was in default on some \$2 bn-worth of foreign debt. Troika Dialog, a Moscow brokerage firm, described Uneximbank's financial position as one where it could not even begin to achieve sufficient cash flow to meet its debts.

But even when, as a bank, Uneximbank was dead, its chairman Vladimir Potanin, simply transferred its viable assets elsewhere. Rosbank, a new bank staffed by Uneximbank employees and controlled by him, received the viable corporate accounts and custody business of Uneximbank, with Potanin in the process justifying his tactics by saying that KPMG's Moscow offices were supervising Rosbank's creation. Uneximbank would then be scuttled with the loss of all hands and to all remaining creditors' interests.

This great Russian escape route of banks and financial-industrial groups to salvage their assets was also followed by other big names. Menatep – which had lost 68% of its corporate deposits, 53% of its rouble-denominated retail savings, 60% of its foreign currency-denominated retail savings, and other smaller losses of commercial borrowers in the crisis – sold its St. Petersburg subsidiary to FIG, its own big and well known financial-industrial group.

SBS-Agro – whose chairman Aleksandt Smolensky had escaped to Vienna and was under threat of arrest had he returned to Russia – did the same. It moved assets to a small bank called First Mutual Credit Society, and changed its name to Soyuz Rossiisky Credit, which in early April 1999 also defaulted on a Eurobond. It reinvented itself as Impexbank, rebutted any illegality by sporting the central bank permit for its actions, and claimed restructuring respectability by retaining international consultants.

In a situation of desperately tight financial straits, prime minister Yevgeny Primatov resorted to a policy of sort of fatalistic calm. This meant it was probably unavoidable that the banks would be left to muddle through to a situation where a smaller, more professional, core would rise out of the ashes of a system that had thrived on privileged access to cheap government cash, and high margin lending to the same government.

Primatov's high point with a group of 19 Western banks which held \$13bn out of some \$40bn

of frozen GKO's was reached in March 1999. Deutsche Bank headed the group's representing committee which started discussions with government when default on domestic debt was also accompanied by a 90-day moratorium on foreign debt payments.

When most foreign creditors started refusing the proffered restructuring terms for the debts due to them, this period dragged on indefinitely. The government, in procedures described as 'behind Chinese walls elsewhere in the (central) bank', gave the banks up to the end of April 1999 to accept terms which would give them a paltry 2.5 cents for every dollar owed – significantly worse than terms concurrently offered on \$40 billion of domestic debt. In the face of this Deutsche Bank resigned from the committee, and the team of banks fell into disarray.

Alfa Bank was relatively small in terms of assets and capital before the crash. When it cut its exposure to GKO's and other short-term government paper in the pre-crisis months – because it had come to the conclusion that some form of devaluation was inevitable – it managed to retain half of its capital, and later became one of the biggest core banks.

Moskovsky Delevoi Mir (MDM) and Probusinessbank also survived, because of relatively small portfolios of GKO's, limited foreign liabilities, and reasonable quality of loan portfolios. MDM was efficient at negotiating swaps for a fee in operations to extract clients' money from frozen accounts with other banks. Fitch IBCA gave these two banks strong creditworthiness gradings.

A year after Russia's banks collapsed, along with the rouble, (and with other emerging markets around the world), they were still adapting fast to survive, but also showing few signs of changing their ways. Despite the December 1998 World Bank survey which had spoken of the technical insolvency of the leading Russian banks, the central bank hardly reacted. Between August 1998 and May 1999 it revoked the licences of just 110 of the 1400 registered

banks, 40 fewer than in the previous year. International criticism continued unabated, and Goldberg (1999, p19) in his analysis for the IMF and the World Bank, argued against the futility of any notions of renationalisation, and 'instead (was) for increasing the capital of privatised firms, and then immediately diluting the stakes of insiders by selling the new shares to external investors'.

IMF officials visiting Moscow in June 1999 continued to push for restructuring of Russia's banking system. The stakes which the Russian central bank still held in a number of banks had been identified as an integral element in the repeated mishandling, the whisking off, the generally inefficient, or even corrupt, use of several big loans made by international bodies and Western governments to the country.

An investigation carried out by the accounting firm PricewaterhouseCoopers (PwC) on behalf of the IMF, concluded that in the mid-1990s the Central Bank had used Fimaco, a Jersey-based subsidiary of Eurobank, its Paris-based bank, to carry out purchases of government securities and conceal the true size of Russia's foreign currency reserves. The PwC report highlighted a \$1bn loan made by the Central Bank to the ministry of finance in June 1996 in exchange for a guarantee booked through Fimaco. The transaction appeared as having been designed to conceal money paid to the government beyond limits agreed to with the IMF. It had the effects of under-stating rouble credits to the government, and over-stating Russia's foreign currency reserves.

A further cumulative total of \$1bn in Central Bank reserves was channeled between late 1995 and spring 1996 into the purchase of high yielding GKO's via Fimaco. Besides wanting disciplining of Central Bank officials, tighter accountancy definitions, closer monitoring, greater financial transparency, and more arm's length fund management, the IMF insisted on the eventual disposal by the Central Bank of its stakes in Eurobank, and the placing of stakes which it held in five European banks into Vnesh-

torbank, a Moscow-based foreign trade bank in which the Central Bank was a 99% shareholder. An alternative option proposed was that the subsidiaries would be transferred into a trust. IMF pressure on Moscow to sell off its foreign subsidiaries, before it could receive future support, increased.

The IMF also pushed hard for what was interpreted as a related move, viz the withdrawing of licences from four banks which had been given time to renegotiate with their creditors, but had not been successful in doing so. These were Uneximbank, Promstrotbank, Mosbusinessbank, and Mezkhombank.

All these banks had to stop operating after July 1999, meaning foreign creditors ended up with even less chance of recovering their money. In the case of Mezkhombank, it was even less likely, because it had already agreed a transparent restructuring, and had not shifted its assets into a newly created bank, in the fashion already outlined above and resorted to by several institutions still dead set on muddling on.

The Defence of Sberbank

The EBRD too was increasingly insistent that Russia break up the structures and monopolies of its state banks. 'The country's financial system must be rebuilt from scratch', it said in May 2000. 'Most of the Russian banks are a lost cause' – (Charles Frank, acting president of the EBRD). Two main elements stood out in the different EBRD/Russian government positions. (a) The EBRD wanted the Russian government to reform and redimension the state-owned Sberbank if it wanted to build a healthy economy.

It saw Sberbank as a 'sacred cow' clearly having unfair advantage in the financial market. This position pitched the EBRD against the Russian government, which was unwilling to break up the Sberbank monopoly. Sberbank then held some 80% of Russia's total deposits through its 19,000 branches. Sergei Kolothukin, deputy finance minister, insisted: 'The transparency of Sberbank should increase, but I don't think it

should be broken up. It has proved to be the only shelter for private depositors during the crisis.' The argument of general and widespread public respect for Sberbank was also pushed by the Central Bank head Gerashchenko.

There was also a view that due to the lofty status that Sberbank enjoyed in public perception – particularly by the masses totally uneducated in the concept of 'investment' as opposed to 'savings' – that those with vested interests were content with such a situation, and were totally unconvinced by the idea of improving and popularising the investment environment. When on 1 February 2000 Acting President Vladimir Putin appointed Igor Kostikov to head the Federal Securities Commission the knowledgeable view was that Kostikov was inheriting one of the toughest jobs in the Russian government, that of trying to bring order to the country's wild capital markets.

Although the Commission had designed strict legislation enshrining good corporate governance practices, it had often lacked the political muscle to enforce its decisions. Kostikov's predecessor, Dimitry Vasiliev, had resigned in October 1999 amid accusations that the government did not give enough priority to defending investors' (as distinct from savers') rights.

(b) The EBRD also held that foreign banks should be given an access to the Russian market.

It saw that some of the funding which, through various projects, it was putting into the country, would – and had started to show early signs of so doing – be more successful in reaching its objectives in cases where either foreign, or totally-independent-of-state, indigenous banks would be allowed to operate.

Small business and micro lending programmes were a classic example, and possibly the surprising aspect here was that Sberbank itself was a willing and capable participant in such SME programmes. At one stage it even told the joint EBRD-G7 funded Russia Small Business Fund (RSBF) that it would not be needing more funds, and would continue small business

lending out of its own resources. For want of anything else to do after the crisis many smaller banks, especially in the regions, also boosted their small lendings.

The EBRD's Transition Report for 2000 for the first time spoke of improved liquidity in the Russian banking system, even as structural weaknesses persisted. But the role of the bank restructuring agency ARCO had remained minimal in a national bank restructuring process that had advanced very slowly. ARCO's own financial resources and enforcing powers were still weak. Very little had been done to reverse the previously seen large scale stripping of assets. Concurrently, the much improved liquidity situation was nevertheless very slow in bringing any major upsurge in lending to certain sectors of the real economy. Many banks still insisted in holding most of their assets in liquid reserves. The EBRD also continued to comment adversely on the fact that state banks were still actually 'strengthening their dominant role in the sector, (and) benefitting from special privileges, such as preferential funding sources, capital injections, and implicit state guarantees'. Although foreign banks had increased their presence to some 11% of total banking sector capital, the macro financial system of the country remained vulnerable to new crises.

Such was the case again in 2001, when a debt restructuring agreement which the Russian government had hammered out in 1996 with the Paris Club of government creditors ran out. When the Soviet Union had collapsed Russia had taken on its old empire's debts in exchange for inheriting its assets. As a result it owed nearly \$49bn to the Paris Club, but was never very good at keeping up repayments.

Even as the country now ran a \$60bn trade surplus, a budget surplus of \$4bn, and had hard currency reserves of \$30bn, the Russian government still stalled from paying, arguing that despite strong economic growth in 2000, the money would be better spent on its own infrastructure and people, than on paying off foreign creditors. It was to President Vladimir Putin's

credit that attempts to inculcate notions about the damage that exercises of financial brinkmanship of this type were making, (both to the domestic economy and to external institutional perception), started to make some encouraging headway. In opting to amend the budget and pay up, he was conscious that Russia could not afford to lose investor confidence again, just when things were starting to pick up.

Laws for Reform

Russian banks were awash with cash in 2001, even as the EBRD continued to criticise the sector as 'not having restructured since the 1998 crisis' and continuing to be 'one of the weakest sectors of the Russian economy'. While the popular media were making much of the fact that with 'strength in numbers' the 'Russian banks (were) are starting to lend (the cash) to industry', the more analytical view remained that the banks continued to carry a higher degree of risk than in other countries, and uncertainty remained on forward foreign exchange and option contracts written even before the 1998 crisis.

Russia began to address some of these issues in June 2001 with new laws on the Insolvency of Credit Institutions, on the Central Bank, on Commercial Banks, and against money laundering. The role of the Russian central bank was strengthened with respect to monitoring the sector, both in its totality and individual insolvent banks. The new legislation gave banks a period of temporary administration of twelve months to achieve financial recovery, compared with the previous eighteen month period. The law also increased the liability of managers who allowed banks to go insolvent, and set new criteria for such bank insolvency. It also gave the central bank power to revoke a banking licence if the CA ratio fell to below two per cent. This new package of banking law changes was aimed at increasing transparency and better regulation. It also brought in consolidated accounting for bank groups. Minimum capital re-

quirements for new banks were raised fivefold to US\$5m. Certainly these amendments greatly increased the central bank's powers, but both domestically and externally sceptics still considered the key test to be how these powers would eventually actually be used.

In July 2001, with private bankers from several Western countries continuing to target the country, (or better still its assets), came the key decision which in its nature came closest to official blessing of privatisation: government and the central bank agreed on deadlines for the state's disinvestment out of the banking system. The strategy was intended to really get going in September 2001, and the first withdrawal had to be from Vneshtorgbank (VTB) by 2002. The real test however remained the case of Sberbank. The policy announced in 2001 was limited to a commitment that control in it would only be given up when its share in the retail deposit market fell below 50 per cent, and a deposit insurance system, in which all banks would have to be members, was formally introduced and running.

The axiomatic truth that trust takes long to build was now fully evident in Russian banking. Although government's following of IMF advice to strengthen creditors' rights was looked upon positively, with measures indeed legislated in a year when Russia decided not to accept any new IMF money, the new banking laws were still viewed sceptically by many as not breaking up monopolistic state banks.

The objective reality was twofold. Russia had come back from the brink after the devastating 1998 financial crisis. But its heritage from communist times of centralised power and control over key economic sectors, including banking, was such that, even as late as 2003, it still had to struggle to convince both domestic as well as Western investors that privatisation was a certain and permanent characteristic of its post-Soviet economy. A classic example was strong opposition from Russian entrepreneurs to the national Securities and Exchange Commis-

sion's efforts to strengthen and enforce legislation protecting minority shareholder rights, and to legislation by the Duma that would strengthen transparency and disclosure of enterprise accounts.

Conclusions

It is conceptually possible to matricise, as we do elsewhere, the main experiences of Russia's banking privatisation into a model that includes, first, general and key privatisation themes with relative categories, indicators, and issues, and, secondly, the specific Russian experiences linked to each of these themes. Such an exercise must by necessity include the following conclusions.

1. When compared with the experiences of other CEECs the Russian account of financial services privatisation assumes a very *sui generis* characteristic of not fitting into specific methodologies, and this predominantly because of the specific political, economic, and social realities of the country as it unfolded. Russian reforms, including the actually only very late acceptance of privatisation, have been described by Redaway and Glinski (2001) as a tragedy. Certainly the 1992-1995 consolidation efforts, and the post-1999 programme, were both highly controversial. Allegations that they were purely cosmetic, at best meaningless, and at worst contributing to the criminalisation of Russia's economy, remained regular features up to at least 2001.

2. Up to 2004 Buchanan was still arguing that in Russia wealth – following the collapse of the USSR – had become spectacularly concentrated. And inequality there, he held, was still dramatically higher than in any country of the West. Using a model developed by Bouchard and Mezard (2000) he suggested that in Russia both increased investment volatility, and lack of opportunities for wealth distribution, were at work.

In the social vacuum created by the end of the Soviet era, economic activity – including bank-

ing initiatives – might appear to have been less restricted or hampered than in the West, as there were few regulations to protect workers and the environment. Such a situation, whilst leading to human exploitation and pollution, also generates extraordinary profits for certain banks and companies.

These are often the politically well connected, amongst whom in fact is rife usage of a popular Russian pun which actually equates privatisation with the 'grabbing of state assets'. Other economists have also pointed out that Russia has been slow to implement income taxes that would help to redistribute wealth and, in so doing, hopefully nurture a society with different views to the present ones about banks and banking functions and services.

The University of Amsterdam's Enrico Perotti (1998), viewing the Russian banking system within a total emerging market context was similarly critical on several grounds. He saw the Russian central bank as having first devised a general framework, but then failing to spell out in detail how its plans were going to work in practice. Perotti argued that the experience of other countries, including some CEEC group states, showed that three elements were crucial for the successful restructuring of troubled banking businesses:

Firstly, banks that take undue risks must suffer the consequences.

Secondly, troubled banks must be closed swiftly to prevent further losses.

Thirdly, a central bank must resist the temptation to whittle away bank losses with a bout of inflation.

Perotti (1998) argued that the Russian central bank did not show the political will to implement such tough policies. It was unclear which banks were going to be supported, how they were going to be supported, how they were going to be financed, and how they were going to resolve the legal vacuum in which they were operating. As has been shown, the unresolved – and related – problems of the consequences of gov-

ernment's default on its domestic debt (GKO) market, and the \$6bn of outstanding foreign exchange contracts signed by Russian commercial banks with foreign investors, proved instrumental in the turning of such policies into a merely idealistic wish list.

3. At the same time others have defended Russia's privatisation programmes as having been the best that were feasible. With continued communist domination of the Duma, and the lack of organised lobbies for privatisation (whether through sales to core investors or through Czech-style voucher schemes), the only alternative to continued state ownership often remained the ceding of majority controls to insiders. Indeed the rate of employee ownership that emerged in sectors other than banking was huge by any standard.

4. In the post-1998 crisis period many of Russia's banks struggled to muddle on, oblivious one could say to the reality that much had changed not only in the other CEECs, but also along the indigenous political evolution spectrum in Russia itself through the Brezhnev-Gorbachev-Yeltsin-Putin sequence. The experience with the latter two suggests closest acceptance of the Tolstoy dictum that 'healthy economies are all basically alike, unhealthy economies are each unhealthy in their own way'. In reality these Russian leaders never accepted rushing banking restructuring through privatisation (even as domestic and external clamour hammered insistently for so doing) which would in any way be comparable to other CEECs or even Western countries for that matter.

5. By 2002 Russia's banking had evolved into a structure where regional state banks still had what, in Western European competition legislation terms, fits the description of dominant positions. But the overall banking market had changed in a number of ways on both its demand and supply sides. Analysing the demand side in detail extends to beyond the remit of this study, including as it does extensive sociologi-

cal, political, and of course many other economic elements. But on the supply side, whilst the number of licensed banks still remained large (inclusive of specific categories, like banks for industry), and small bank syndicate lending participation became a noticeable strong new feature, the presence of foreign players was now also conspicuous.

6. The path that banking privatisation took in Russia is totally uncomparable with those followed in other CEECs. The path that it will take into the future also remains uncertain. But some implications for the West are now possibly clear. By focusing too heavily on only the highest levels of the country's macro-economic policy, the IMF, the EBRD, several Western governments, and most economists, often seem to suggest a certain flawed or incomplete understanding of the Russian economy and its banking sector in particular. It is possibly also an approach that ignores that in many areas the right frameworks are in fact now all in place, and that the economy is past its worst times. But for as long as even the slightest whiff of national, or local, government interference in the affairs of any single banking institution remains, neither taxpayers' nor investors' money would be said to have been wisely placed in such institutions.

In June/July 2004 Russian banks were again reported to be in crisis, but this time a more assertive central bank earned positive assessments from raters Standard and Poor's, and Fitch, as it moved quickly to withdraw licences from a couple of small to medium sized banks for money laundering and inability to meet depositors' demands. Although the country was now showing signs of some strong economic fundamentals, issues of institutional weakness (e.g. a lot of credit risk, weak supervision, some ownership issues, and unreliable examples of inter-group lending) were at times still provoking situations of overnight funding problems.

John A. Consiglio

Implications of Foreign Public Capital in National Forms of Public Financial Infrastructure

Historical Instance on the Involvement between Export Import Bank of the U.S. and Mexican Development Bank (1934 -1954)

The historical formation of a national economy in Mexico took a remarkable turn towards industrial modernisation during the last decades of the nineteenth century. However, this process failed to generate significant links with other segments of the economy. Without linkages backwards or forwards, and with a predominance of foreign-owned industry, the national economic groups met with barriers caused by the inertia in mobilising capital.

This paper discusses and presents empirical evidence on the historical relations between the forms of public financing for development and the manufacturing infrastructure linked to it. It investigates the effects of the historical involvement of the state in the allocation and circulation of strategic resources. Crucial is an analysis of the circumstances surrounded the creation of the development bank in Mexico, as an organisational break away from the immobility of capital in the industrial structure of the nineteenth century.

The state's approach to a financial organization was built upon endogenous solutions to the inability or reluctance of the export-import sector to generate an accumulation regime that capitalized on the domestic market. The link between the way in which the state enabled economic development and the industrial structure resulting from the national financial set up was crucial in the historical path of Mexican economy.

Introduction

This paper focuses on the provision of funds by the state to build the necessary financial infrastructure for the allocation of resources to economic activities considered productive, and which, at various times, were the preferred activities of the state for national economic development.

However, how should one assess the impact on the national finances of the origin of capital authorised by the State? What are the impacts of the public debt on institutional activities for assigning the capital, and how do these affect the organisation of the borrowing/lending economy?

The incorporation in the national financial repertoire of the responsibility for securing external public credit, redefines the function of state promotion agencies and impacts the structure and its patterns of specialisation. The magnitude of the external public resource and the regularity of its availability are the differentiating factors in how different nations finance their industry.

This paper presents a national case in which the Export-Import Bank of the U.S. was the largest lender for public national agencies of development finance. First, the analysis is aimed at discerning national management mechanisms for allocating international standardised patterns, such as lines of credit, approved by the EXIM Bank .

Secondly, the analysis focuses on the effects of these arrangements (external government credit / internal public administration) for financing development, on how the borrower economy is organised: the generation of sectors, of modes of production, models of collaboration, competition and coordination, and in particular a nationally distinct system of relations between these factors, actors and processes.

Differences between nations in how capital is organised and expanded through production, circulation, distribution and consumption over a period of time and with a certain level of stability, generates different forms of national financial infrastructure. Such infrastructure is characterized by the type of processes, practices and procedures put in place to enable those investments.

The establishment of an institutional type or variety has historical political and economic determinants. At the establishment stage determinants include diagnostic phases about the performance, and obstacles and advantages of this institutional form. When much of the resource comes from foreign government credit one of the key components of these diagnostics, and thus of the course of the transformations, is the link to the creditor, for instance EXIM Bank.

This state financial intervention also creates new social scales. The economic development financing involves channeling capital to manufacturing projects. This action is constitutive of a national economic system, transforms the economic organisation, and also the structure of social groups around the manufacturing projects that are funded. The foreign government loans were necessary because the capital market was extremely weak in Mexico. The study of the Mexican development bank -Nacional Financiera- and the EXIM Bank enables us to observe the relations between the financial market and the type of industrialisation. The institutional channel formed by these two agencies explains the state's role in financing as an internal logic, but it also demonstrates its place as a decisive worldwide connection.

Such arrangements (foreign public credit / internal public management) have been transcendent for discerning the financial process in the organisation of a borrower economy. Here we review the usual interpretations of the implications of foreign capital in economies where there is strong demand for goods and resources, and the required adjusted conceptual schemes and innovative evidence, to reframe the causation or explanatory orientation of the determinant factors in each national case and within each period.

The financial architecture of the borrower economy may be a decisive mechanism for how the input channel of foreign public capital is formed. Similarly, it may be that credits from the Export-

Import Bank were the substantive factor, as well as the institutional form taken by public agencies and on the economic structure associated with this financial arrangement. It may even be the case that prevailing business actors within the manufacturing structure, and disposition sector, determined the financial arrangement and the origin of external resource.

This article synthesises an analysis of actions taken by the Mexican state that, in retrospect, could be systematised as a type of national organisation for the financing of economic development. These are actions designed to solve two demands, both decisive for the very viability of the state form: such as internal legitimacy and external integration.

The processes associated with each of these two imperatives have generally been considered antagonistic; and that legitimacy depends on the idea that the subject policy is justified when it generates social welfare, even when operating through an unbalanced hierarchical scheme.

All states aspire to create and spread the perception that they are managing a programme that is comprehensive and as such beneficial to different segments of society. In doing so the state redefines the boundaries of his authority. To support this notion of legitimate authority, the states interfered increasingly in economic transformations, and once they are implicated in the process of accumulation of capital, this responsibility cannot be delegated so easily to the market or to external constrictions.

Thus internal legitimacy is achieved through its implications in economic processes, or at least by the ability to persuade groups and segments about the maximisation of social welfare that results from state decisions. Thus, as soon as they become involved in such processes, the state is integrated into an international system, not only as a frame of sovereign political entities, but as a system of the division of labour.

As a result, the connection between domestic achievement (internal legitimacy) and external

context (outward integration) becomes much closer and more direct.

Consistently, we consider economic process and its historical manifestations as an analytical field particularly indicative of the operability of state. For this reason, in the abstract, we investigated the state economic actions concerning the factors of legitimation and integration. However, the direction of such action cannot be determined except through a historical analysis. Initiatives originally designed for prosperity for most of the social groups could result in economic and social disintegration. Certain kinds of state economic actions can either facilitate or prevent economic integration and external or domestic economic reorganisation depending on the historical structure that is developed and operated through time.

The Financial Process as a Public Infrastructure

The financing of economic development is state action, determined by the way integration into the national community is defined, and which hierarchies are operating in the economy. The financial action of the state affects these conditions and habits. Activating the capital, and allocating resources through guidelines that distance themselves from financial practice history, financial public intervention has important effects on the organisation of a national economy in generating sectors, modes of production, models of collaboration, competition and coordination, but especially a nationally differential system of relations between those factors, actors and processes.

The substantive argument is on the futility of establishing a developmental state management function for intervening in and subsidising industries as if such organisation and procedures will form a structured and regularized area.

In fact the process of state formation is part of the contingencies, eventualities and basic conditions of national trajectory. Further autonomous fields (antagonistic) within state in-

frastructure should achieve some degree of institutionalisation though this is also a field of thought whose viability is being questioned. Then there is the question of which form of management involvement and political power leads to the development of certain characteristics in the same historic course in the financial scheme, the market and manufacturing sector when looking at a domestic environment.

The conditions that prevail in the internal market remain and lead to most of the investment being channeled towards the traditional fields of real estate, speculation in goods and foreign trade. These are fields in which the investor can find security, yield and liquidity that justify their investment (Diamond, 1958).

The configuration of a financial system is affected by tolerance to risk prevailing in a national culture. Effective financial systems vary in their ability to reduce the risk, but the preference and prevalence of a system over time has to do with the attitude of domestic investors to the avoidance of risk and uncertainty. In countries with a high tendency to avoid uncertainty, the population tends to have a negative view of competition and conflict, and leans towards decisions made by groups and management through consultation, collectivism and corporatism. The inquiry style is oriented towards cooperation and therefore toward greater predictability of the behaviour of the other actors .

The State continues to be the best located entity to organise an infrastructure for the financing of economic development, or at least regulate financial activity for some benefit for the domestic market. Their legitimacy depends on it, at least in the perceptions of their social base. As such the State continues to be the main unit for political competition, and defining property rights, and is the predominant influence for the institutions of labour markets, many of the features of the economic model, and the business community.

The link between the way in which a State makes possible their economic development

and the industrial structure resulting from the chosen method for managing national finances was crucial in the historical path of the Mexican economy. Institutionalisation of procedures for financing economic development was a critical factor to differentiate between: modernisation, economic growth, industrialisation and technification, and structural transformation. The structure of an economy is equal to the circulation pattern or resource flows in a particular time. Within a national context this structure includes differential affluence of hierarchies and preeminence among sectors. It specifies the pattern of the accumulation and exchange of resources. These are recognisable national schemes of property, exchange, and capital mobilisation. The national financial process is the determinant operating at this structural level.

México 1932-1954

The post-independence period, the years ranging from 1810 to 1870, defined a phase of decoupling colonial techniques for the management of manufacturing and accumulation. During these 60 years, economic actors, including the State Organisation through its economic action, were unable to establish productive alternatives for export that could emulate the economic organisation of the last hundred years of the colonial period.

Silver production decreased by 80% between the last decade of the eighteenth century and the 1850s. This shows the inability to manage and operate the extractive industry outside the colonial scheme. Gold mining also tended to decline from 76% production between the last decade of the colonial period, and the 1860s.

The constitutional basis of the Porfiriato dates back to Liberal victory in 1850. During the period of Maximilian the broad outlines of a liberal economic policy were implemented. Such policies started to render results from the military coup in 1877. The focus was on the attraction of foreign resources to stimulate the modernisation of the national economy. Unlike previous

regimes seeking to attract foreign resources through public debt policies, Porfiriato aimed to attract foreign capital and settlers directly towards productive activities.

Although export orientation is evident from the 1860s, the trend of production organisation linked with external relations and without requirements or benefits for other economic units of national segments, is evidence of the kind of production, financing and commercialisation methodologies of the enclave.

Mexico initiated a similar process of industrialisation than that of the U.S., focused on non-mechanised factories, but while in the U.S. market growth promoted industrial expansion, in Mexico the absence of a sufficient market obstructed the process. This obstacle highlights a central factor in the industrialisation process: the development of this process does not depend so much on accumulation of capital as its mobilisation. The point is to obtain savings and allocate them to those who need them for industrial investment.

Mexico lacked agencies that could efficiently channel capital from savers to investors. The costs of industrialisation, based on the importation of goods externally produced, were too high, not only the machinery, but the costs of transport, insurance and associated salaries. Without organisations to mobilise capital, industrial development was restricted.

Impersonal financial sources did not appear until the 1890s. Mexican entrepreneurs could not obtain financing by shares through the open market or borrow from credit intermediaries, because Mexico had neither a stock market nor banks. When finally institutional innovations formed these funding sources at the end of century, their use was reserved for a few financial companies that had good contacts, Due to the slow and unequal development of credit intermediaries, most manufacturers do not get bank financing. Most of the investment capital for Mexican manufacturing came from big business.

Industrial modernization, at least in its most relevant levels, followed that of an enclave in terms of the manufacturing organisation, financing, structure factors, marketing, and even consumption. The enclave, although holding substantial levels of productivity, technical progress and dynamism, did not generate (nor needed to generate) significant links with other segments of the national economy.

We could argue that the enclave itself were a cause and consequence of weaknesses in the financial system. Without a sufficient capital market, it was considerably more likely that production would be organised in this way, including the industry's own procedures for funding their activities. And at the same time this production organisation made state intervention irrelevant and innocuous in the channeling of certain types of investment through differentiated assignments.

Provisions designed under President Abelardo Rodríguez aimed to make a viable organisational platform for the first time in the history of Mexico, channeling external funds publicly through an institutional link that was operating even prior to NAFIN. The case of the Export-Import Bank of the U.S. is illustrative. The Bank was the first and largest foreign lender, nearly doubling the second row, from 1941 to 1954. EXIM started by approving loans to U.S. exporters, NAFIN included. By 1935, the date of the first authorisation destined to Mexico, there was still no directive in its legal framework on this matter, nor in the corresponding operations of the bank that was chosen for the industrial development of the State, and yet all these credits had the backing of the Ministry of Finance. This intervention was the result of the infrastructural changes associated with the administration of Rodríguez.

Amongst the most important regulations was the Regulation for the Authorisation of Loans Against the Federation of 30 December 1932, granting the Ministry of Finance powers to award, renew and revise contracts in which

the government was considered an interested party, including the expenditure of public funds or affected federal property.

The Unification of the Federal and Local Taxes and Redistribution programme was a constructive programme devised for the states as the fiscal basis for economic unification. The idea was to coordinate local systems of taxation from the federal system. By this arrangement, many of the contracts signed by states with export companies were supported from tax calculation performed hacienda.

This is one of the actions associated with a gross interest for planning and state intervention in the economy. Those laws were the axis of the linkage with foreign public capital, before channeling via Nacional Financiera. Loans that were granted to U.S. exporters for the execution of works in municipalities were offered through this mechanism. This is essential as evidence of the intention of A. Rodríguez to redefine the link with external financial capital, before NAFIN became the main channel in 1941.

Nacional Financiera since 1934

In April 1934 Nacional Financiera SA was established with the character of a national credit institution. The primary function of the agency was restoring liquidity from reincorporation into the private economy of certain real properties awarded to government and to the former issuing banks.

To delineate more precisely, its objectives were to facilitate the ability to enter into and contract loans, and invest in the market through the buying, selling and custody of securities. Nacional Financiera did not develop greater centrality as a national credit agency, instead its operations grew much closer to those of a mortgage bank. The Territorial Credit Act of 19 December 1935 expanded the functions of Banco Nacional Agrícola: actions related to land ownership and mortgages were transferred from NAFIN SA to this agency. The capital of the development bank was diminished from \$20 million to \$10

million. Most of these resources were frozen in unprofitable operations.

To understand the objective conditions for the emergence of EXIM, it is important to identify changes in trade patterns that occurred in the U.S. economy in the early decades of the twentieth century. These paths had created the need for a system of guarantees and export credit even before the Depression. The inability of private initiatives to establish this organisation required the government to intervene and establish organisations. During the early years of the twentieth century U.S. exports had changed from an agricultural base and raw materials to the manufacturing and production of capital goods. In 1928, capital goods accounted for 21% of U.S. exports.

During World War I the export surplus exceeded U.S. \$1,000 million. This surplus was funded by the liquidation of foreign holdings of U.S. assets and the flotation of large loans in the market for private investment by British and French governments. In 1917 the U.S. entered the war and gave considerable credit to the allies. The export surplus continued to grow and by 1919 totaled \$4.5 trillion. The U.S. went from being net debtors in 1917 at the beginning of the war with a debt amounting to U.S.\$ 3.7 billion, to a net creditor for the same amount by the end of the war (Feinberg, 1982).

Export trade based on heavy goods, plus the trade surplus that the U.S. economy generated, significantly affected trade finance worldwide. The trade surplus slowed the dollar purchasing power of overseas buyers. American exporters and bankers pressured the government to ease the dollar shortage and increase foreign currency circulation. In 1919 Congress passed the 'Edge Act' which allowed banks to circumvent antitrust restrictions and associate to form corporations specialised in international loans. Yet no organisation came to extend long-term loans to finance exports of capital goods (Feinberg, 1982).

Depression exacerbated the shortage of trade

credit and the difficulties faced by U.S. exporters to sell the capital goods they produced. Cash was the typical payment type in such transactions just before the economic crisis, and continued to be the main payment type in the domestic sphere (Mazo, 1976). However, the expansion of industry assets linked to the needs of the war coupled with the decrease in the purchasing power of buyers made clear the need to define a national system of credits and export guarantees for U.S. goods.

Some European countries, notably Britain and Germany, initiated grant programs and loan guarantees for their exports, resulting in significant disadvantages for U.S. exporters in the world market. This situation deepened the dissent between the sectors affected by the absence of a state institution to provide similar facilities. The U.S. required its own public agency credit to support its traders and creditors in dealings with foreign governments, and to assist U.S. exporters in competition with foreign companies supported by their governments in third markets.

Until 1941 the Nacional Financiera was able to raise funds in the domestic market through their participation certificates. As of 1942, with its first foreign credits, the agency became a source of financial funds. The first of these credits was authorised by the EXIM Bank to NAFIN, in 1942, to help finance the steel company Altos Hornos de Mexico, SA (hereinafter, AHMSA). This company is one of the most successful cases of promotional activity of the development bank, and was an intervention illustrative of the orientation of its activities for the next six years, in which it became actively involved in the creation, participation and rescue of companies, through direct injection of capital and involvement in the ownership.

Probably the biggest positive effect of its capital constraint and functional constraint is the initiation of certain operations with historical transcendence in the type of financing for development in Mexico from 1937 onwards. NAFIN was

a key actor in maintaining a minimum level of trust in government securities (bonds in roads, internal public debt bonds in series, railroad bonds) in a time of exchange instability and uncertainty about possible retaliation from oil companies after the expropriation.

World War II marked a downturn in the import of capital goods and consumer goods. The opportunity to expand the composition and pattern of industrialisation was created by this juncture. During this period we argue that NAFIN's intervention was that of an agency participating in financial development through its role as a direct employer. This belief in development through ownership is evidenced by the number of companies driven by NAFIN.

This participation as a shareholder of several companies also had a marginal but important effect in establishing a trend that would have some continuity in the subsequent phases of territorial distribution of resources channeled by NAFIN. As northern Mexico wielded industrialisation levels higher than the central and southern territories, in the north of Mexico traditional capital remained linked to the model of growth founded in the late nineteenth century. NAFIN, especially in these years of business activity, established a territorial allocation pattern of the placement of plants and factories, which expanded the geographical structure of

economic activity concentrated in the northern states of the country.

By 1941 NAFIN reorganised and established the Department for Development responsible for advancing studies and negotiations to channel domestic and foreign capital to industry development.

The move was indicative of the Nacional Financiera's cross-function approach of promoting the domestic capital market through the issuance of different types of securities and other instruments that marked a trend in access to these resources and diversification of ownership (although treatment fundamentally securities holdings and public companies) unprecedented in the history of the national financial sector. Such actions were key in establishing the role NAFIN had within the organisation of the State.

Nacional Financiera was, from its establishment, an organisation aligned with nationally defined requirements and provisions: it had no local or regional logic like other agencies.

As a cross practice, from 1935 onwards, Nacional Financiera, financed several companies connected with president Abelardo Rodríguez Luján:

Cementos Portland de México Cía.

Hulera El Popo, S. A.

Ferretera del Norte

Datos Básicos de industrias impulsadas por NAFIN, S.A. junio de 1947				
Empresas	Inicio de operaciones	Producción anual		Inversiones totales (\$miles)
		Volúmenes	Valor (\$miles)	
Chapas y Triplay, S.A.	1941	1,200,000 M2	10,003	3,7
Nueva Cía. Eléctrica de Chapala, S.A.	1942	420,000,000 K.W.H.	33,6	155
Carbonífera Unida de Palau, S.A.	1943	489,000 T	9,2	35
Cementos Guadalajara, S.A.	1943	120,000 T	12	17,3
Unión Forestal de Jalisco y Colima, S.A.	1943	120,000 M ³	5,1	6
Altos Hornos de México, S.A.	1944	146,000 T	75	113
Guanos y Fertilizantes de México, S.A. (incluye planta de sulfato de amonio)	1944	20,000 T	6	18,8
Empacadoras Calidad, S.A.	1945	2,000,000 Latas	4	5,8
Cementos Portland del Bajío, S.A.	1946	120,000 T	12	26
Cobre de México, S.A.	1946	12,000 T	30	7,25
Aceros Esmaltados, S.A.	1946	28,000 Estrías	10	5
Cia. Industrial de Atenquique, S.A.	1946	39,000 T	3	57
Celanese Mexicana, S.A.	1947	4,500 T	57,5	44
Sosa Texcoco, S.A.	1947	10,000 T	5,65	18
Cia. Vidriera de Guadalajara, S.A.	1947	12,000 T	5,09	8,3
Química Mexicana, S.A.	1947	1,000 T	2,51	4

Information about the companies promoted by NAFIN. Source: Nacional Financiera, S.A., *Quince años de vida 1934-1949*.

Seguros Atlas
Banco Mexicano
Distribuidora del pacifico

In the previous section we observed the emerging role of NAFIN as a developer of the capital market. However, the industry standard, as defined during the presidency of Lazaro Cardenas, targeted the ejido method of manufacturing development, and employed credit as a social service for the benefit of needy producers. In this environment Credito Agricola Banco and BANOBRAS had greater centrality than the Nacional Financiera and there was a move towards the consolidation of basic industries. There were several factors that explain the beginning and the historic significance of NAFIN as a funding agency of the development of the economy during this period.

Guided more by the imperiousness of marking a break away from the orientation of Cardenas (1934-1940) than by a conscious programme of industrialisation, President Avila Camacho (1940-1946) prioritised the alliance with the private sector as the foundation of social transformation, minimising land distribution and agricultural programmes as the impetus for change.

The Amending Law of the 1940s, besides being a response to endogenous conditions, sought to promote the entry of capital through an institutional channel. This meant for the first time some level of state control of investment in a country whose first industrialisation was characterised by its enclave-type production without any major consideration of financing and the allocation of foreign capital.

Since 1935, the Export-Import Bank of the U.S. had funded American exporters in the trade of capital goods purchased by municipalities, states, state enterprises and the central government itself. In September of 1940 the law of EXIM bank was amended, increasing its lending authority and granting it authorisation to make loans to '... any government, their central bank or other banking organisation reputable, when, to ensure this government or central

bank, or financial institution, a political subdivision, or agency of any such national governments. And for the development of resources to stabilise economies and orderly trade products from countries in the Western Hemisphere'.

Two months after the EXIM statutory amendment in December 1940, the legislation of Nacional Financiera was amended, and on 12 August 1941, the Export-Import Bank authorised a line of credit to NAFIN SA for US\$30 million under the rubric credit lines for foreign central banks to provide foreign exchange for essential imports of American equipment. These loans were granted during periods when the dollar was small change in the importing countries.

The operationalisation of these authorisations were made through loans or preferred goods subscriptions to American banks, allowing these banks to make loans to any government, central bank, or any other acceptable bank guarantee only when this government, central bank or financial institution was found acceptable by the political subdivision or agency or national government concerned.

Thus from 1941 onwards a career of complementarity between the two agencies began in the model defining Mexico's economic development financing. It was an efficient channel for trade coordination and the allocation of production factors remained buoyant until the privatisation of the Bank's lending authority, and with it the prominence of guarantees on loans.

One of the main trends to be discerned in the state's funding of the industry is the preponderance of approvals to companies owned by state leaders. During 1941 - 1947 the state was seen to act as an entrepreneur and direct promoter of industrial capital.

The second diagnosis is related to the Foreign Lending Programme of the U.S. government. This policy mandates that authorisations be oriented to restore the productive capacity and to facilitate the economic development of the borrowers. The approved programme should contribute to a balanced development of interna-

tional trade, including payment of loans, goods and services in borrowing countries.

The EXIM Bank was responsible for promoting the expansion of international trade in both directions. These loans should enable recipient countries to increase productivity, reduce excessive business regulation and expand trade with the U.S.

In December 1947, during the administration of President Miguel Aleman, an amendment to the law of December 1940 was issued. Again, there are two diagnoses proposed as motives for this transformation:

In the domestic sphere, NAFIN applied itself to the task of industrial promotion primarily through involvement in business. It ensured that the supply of capital to the industry was through its participation as a shareholder of new enterprises. By 1947 NAFIN SA had shares in 89 companies primarily located in the Federal District and the State of Mexico. The private sector showed resentment against this orientation of industrial development. Starting that year, their role would be as a creditor and not as a shareholder. In 1947 legislation stipulated that NAFIN operations should not crowd out investment and private property in the new industries. In April 1947, a line of credit of US\$50 million was approved and granted to NAFIN SA as part of development loans to the export trade on the condition that the projects to be implemented improve the position of Mexico in the balance of payments. The Bank sent a commission to ensure that the use of these funds was consistent with that provision.

Finally the assignments associated with the credit line authorised to Nacional Financiera intended to solve the problem of strategic minerals supply. Coal mining and coke production should be encouraged because they were the input for the processing of minerals and strategic products. The EXIM Bank should consider extending loans to eliminate this bottleneck and boost the production of essential material.

These diagnoses marked the following adapta-

tion of the development bank in Mexico: NAFIN would be the central agency and coordinator of long-term financing to external and internal, as required for the development of the country, both in public credit operations and in the fundamental Enterprise Support.

In September 1948 during the presentation of his report to Congress of the Union, President Alemán, categorically said there was a need to limit NAFIN's involvement financing priority interest industries. He emphasised the obligation of development banks in providing cheap credit to industry and agriculture for import machinery and equipment.

With this resolution President Alemán incorporated, as a constitutive element of the horizon of meaning that justifies and legitimises public intervention of state administration, a close link between the national economic development scheme and the scheme of development of the United States. The provision that aimed to facilitate and promote agricultural and industrial activity that requires capital to grow was seen as equivalent to the requirement of American industry to secure markets for their products and their surplus (especially agricultural).

Conclusions

While institutional linkage was established with the U.S. government agency for export financing in the first years of the 1940s, this was an unprecedented partnership, and allowed NAFIN to capture substantial resources and long-term favorable conditions, which was reflected in the many infrastructure projects in basic industry, and other items of capital inflows. The U.S. official EXIM Bank's involvement in the sectors that received these loans followed the following rationale: ensuring essential imports to the U.S. economy, and simultaneously promoting and facilitating the export of goods and services produced in the U.S. through loan conditions allowing resources to be employed only in certain markets and for certain products (Green, 1976). So, if the framework is built upon the link with

August 22, 1946

SYNOPSIS OF CREDIT NO. 323

NACIONAL FINANCIERA, S. A.
(Altos Hornos de Mexico, S. A.
Steel Mill)

\$8,000,000

1. Background

In late 1941 various Mexican industrialists and financiers composed the "Sindicato Industrial, S. A.," which became interested in the construction of a Mexican Steel Mill. Discussions were had with the U. S. State Department, and also with the Mexican Government, and the latter approached Eximbank for a credit of \$6,000,000, which was granted on April 12, 1942.

2. Purpose

To enable Financiera to assist Altos Hornos in the acquisition in the United States and the transportation to Mexico of machinery, equipment, materials, supplies and services required in connection with the construction by Altos Hornos of an integrated steel plant at Monclova, Coahuila, Mexico. "transportation to Mexico" shall include all expenses to site of plant.

August 22, 1946

Credit No. 323
Page 2

- (j) Term: Each note issued by Financiera to be due and payable in 24 approximately equal installments, the first of which shall be due and payable on September 1, 1945.
- (k) Form of obligation: Promissory notes issued and signed by Nacional Financiera, S. A. guaranteed by the United Mexican States.
- (l) Special features: Only those otherwise mentioned herein.
- (m) Equipment must be purchased in the United States. Transportation expense, etc., to plant site eligible for financing under the credit. No local Mexican labor may be financed under the credit.
- (n) Amendment of April 13, 1945 increases the credit from \$6,000,000 to \$8,000,000 and extends credit expiry date from December 31, 1944 to December 31, 1946. Bond deposit, mentioned in Item 3-h, increased from Pesos 30,000,000 to Pesos 40,000,000.

August 22, 1946

Credit No. 323
Page 2

- (j) Term: Each note issued by Financiera to be due and payable in 24 approximately equal installments, the first of which shall be due and payable on September 1, 1945.
- (k) Form of obligation: Promissory notes issued and signed by Nacional Financiera, S. A. guaranteed by the United Mexican States.

Synopsis of credits approved to NAFIN, SA by the EXIM bank., To assist in the construction of the steel plant in Monclova, Coahuila, AHMSA. Archive U.S. Export Import Bank.

New research

foreign capital in an enclave-type production organisation, there is clearly a national control of production and accumulation. But in concrete terms, the course of development continued to depend largely on the requirements of the creditor economy.

This undesirable consequence of state economic action is related to EXIM Bank's involvement in the funding of the national industry. A case in point is the approval of credit for hospital construction and expansion of one of the most successful companies that drove NAFIN, Altos Hornos de Mexico, SA.

Credits approved by the Export-Import bank, both for infrastructure and for the construction of facilities, factories and plants for basic industry, had two restrictive conditions for the course of national development:

- a. They were tied credits - certain products must be acquired and the resource could only be made available in certain markets. This condition was particularly determinant in times of war, during which industries producing strategic materials were financed. It was the same with the agricultural surplus in the U.S. market loans were made very accessible but spending was conditional. Despite this trend, industry expanded, an infrastructure was built, and numerous authorisations made EXIM feasible.
- b. Commonly the Export-Import Bank charged the execution of projects to U.S. corporations. Potential experts or consultants were excluded from the design, construction and project management of national projects. This condition of credit approval processes inhibited endogenous learning and technical and administrative innovation. The technological gap was irrefutable to open markets associated with these practices.

Finally, an unexpected result of state action, and emerging constraints that were moving towards unexpected directions the public driving range of financing for development, as was de-

ployed from 1932 to 1954, arose new economic actors and new relationships in the form state-which obviously was transformed and initiated a process of engagement with the new strategic economic groups. This circumstance contributed to the decline in the centrality of NAFIN and the infrastructure for state intervention that had been the norm since 1932. Such unexpected circumstances were the result of the new historical model which took shape in the thirties.

Natalia Vargas Escobar

Universidad Nacional Autónoma de México

Computers and Teleprocessing Changing Business and Life in Banking

Nowadays, the press, radio, television and the new social networks are saturated with information on technological innovations and the influence they have on our lives. Thirty years ago, in 1983, Time magazine actually nominated the computer as its 'man of the year'. If we go back further, we will see that in the already distant fifties and sixties, the appearance of the first computers, those of the first and second generation, had a substantial impact on the banking industry. The new machines affected the internal organisation of institutions (back-office) and relations with their clients (front-office).

However, sometimes clouded by the advances of the present, we lack perspective when weighing up the impact which Information Technology (IT) has had for decades on our lives and on our companies. For this reason, maybe we should research the historical point of view in greater depth as this may help the study of banking institutions which have been, and

which continue to be, technological leaders. The former Caja de Pensiones para la Vejez y de Ahorros de Cataluña y Baleares (Catalonian and Balearic Islands Saving Bank, today 'la Caixa' and CaixaBank, its banking wing) is a good example.

Rapid Learning

One of the characteristics of the Spanish banking system, both commercial banks and savings banks, was that it was technologically and organisationally behind its European counterparts in the years following the war. Undoubtedly, the traumatic civil war had an influence but already in the thirties, the European banks and savings banks had started mechanisation and automation whereas in Spain, technology was very rudimentary and scientific management was still not particularly well known.

Nevertheless, in the fifties, some banking institutions such as 'la Caixa', which had a strong



entrepreneurial tradition and which was well-rooted in civil society (it was founded in 1904), were able to introduce a new dynamism to their internal management. The architects of this new direction were members of the organisation, often the youngest and most dynamic executives who knew languages and who were highly curious about what was occurring in Europe. They were able to involve the management and board of directors who tolerated the new dynamics. (We must not forget that this phenomenon was occurring in a closed and corrupt institutional environment, such as that brought by the early Franco years, and that the institution itself had suffered reprisals after the Civil War).

Therefore various initiatives unfurled throughout the fifties: contacts with manufacturers of tabulator machines (IBM and NCR), intense bilateral contacts with banking institutions in Europe, the USA and Latin America, as well as study trips to learn about automation in other savings banks (especially the visit to the Italian CARIPLO, the Caisse d'Épargne de Lyon and the Caisse d'Épargne de la République et Canton de Genève in 1958). As a result of all this activity, a restructuring of human resources was beginning to take place, as well as a reform of the organisational structure - circumstances which ran parallel to the first steps of mechanisation. Changes were occurring very rapidly, so much so that by the end of the fifties and the start of the sixties, the technologies had been installed and organisational transition was complete. There was now access to computer technologies. A worthy example was the restructuring of the accounting section. In the sixties it was announced that it would have a revised role implementing a so-called Electronic Accounting Service, leading technological change. Initially this was restricted to a nucleus of pioneers belonging to this service but, through slow osmosis, it spread new habits and routines across the entire organisation.

The Pioneers of Teleprocessing

In 1962 the first computer arrived, an IBM 1410 (a computer of the so-called second generation, based on the use of the transistor). With this, the automation of the institution was undertaken.

The new computer enabled the off-line automation of a wide range of operations. Maybe the most striking aspect from this period, if compared to other banking institutions in Spain and Europe, was the off-line incorporation of the management of branches (the institution had 241 offices spread around Catalonia and the Balearic islands). The logistics which were being established were impressive: every day punched cards arrived at the central office in Barcelona, which housed its computer centre. These were generated by all the institution's local offices. The cards were sent via road or plane to be processed the computers and, continuously, their results were re-sent to the points of origin so that the offices opened their doors with their accounts tallied. Thus ad hoc programming was being developed for programmers of 'la Caixa' with the collaboration of IBM



The Swedish calculator ADDO-X, its punched tape could be recognised by a computer (end of 1950s)

technicians. The automation of the administrative processes was expanding like an oil slick, affecting all services and departments. A little later, on 15 March 1964, the IBM management in Barcelona unveiled their 'latest and revolutionary system', the IBM 360. This new advance was linked to the appearance of third generation computers (integrated circuits). It was characterised by the appearance of large central computers - mainframes. The computers of the 360 series were to the IT industry what the Ford T had been for cars some decades previously. This computer created a mass market and turned IBM into a vertically integrated industrial giant. After this contact with the new model, executives and technicians of 'la Caixa' were invited to visit the IBM installations in New York. At the end of the summer of 1964, they made the visit and this enabled them to experience the actual operating capacity of IT applications developed for 'la Caixa' in

the new model, and from then on the bank gave its blessing to teleprocessing. Clearly the visit to the head office of IBM in New York and to its manufacturing plant in Poughkeepsie was used to tighten institutional and personal relations with the American multinational.

In 1967, communication between computers and terminals was activated (teleprocessing), which permitted the progressive introduction of online, real-time operations, firstly in the central office and progressively in the office network. This stage was finalised in 1978, when the 547 offices of 'la Caixa' had teleprocessing terminals (1010 terminals).

Over those years 'la Caixa' underwent an intense transfer of knowledge and was very open to the diffusion of previous innovations from more developed countries. This was what can be called the period of adapted innovations, which were accompanied by accelerated learning processes, aspects which together had a



Visiting IBM manufacturing plant in Poughkeepsie, New York, September 1964

strong impact on productivity. Between 1962 and 1978 something began which in a historical perspective can be called the « technological option of the institution», a characteristic which has remained unscathed to the present day. The basis of 'la Caixa's' technological development was established. Its early adoption of teleprocessing made it a benchmark institution for financial users and IT manufacturers.

Collaborating and getting to know the world

Recently, it was pointed out that financial intermediaries were important players in the design, use and diffusion of new technologies, especially in the adoption of computers and IT applications. Savings banks, in turn, enjoyed some associative mechanisms and very intense collaboration throughout the second half of the 20th century. This resulted in a series of exchange forums which generated transferrals of knowledge. Simultaneously, over those

years, Spanish savings banks developed a policy of collaboration through their associate body, the Spanish Confederation of Savings Banks (CECA in its Spanish abbreviation). The creation of ad hoc committees to promote collaboration between savings banks with common innovation projects was one of the sector's comparative advantages, not only in Spain but also in Europe.

'La Caixa' has been (and still is) present in international forums and has actively taken part in the policies of collaboration managed by the CECA. Its technological leadership was greatly echoed in the international committees organised by the International Savings Banks Institute (ISBI, nowadays the World Savings Banks Institute, WSBI and European Savings Banks Group, ESBG), but the contributions and experiences that 'la Caixa' brought to the heart of the CECA were also notorious, especially in a period of institutional change, in which savings banks had to adapt to very dynamic competi-



New teleprocessing terminals at Main Office in Barcelona, January 1968

tive surroundings. The technological factor was key in the new competitive context and those institutions that were behind in those processes had an important role in the design of collaboration policies developed in the CECA.

In general, the boost to technological change and consequent innovation in Spanish savings accounts led to a series of factors. On one hand, the largest savings banks' initiatives converged (although the leadership of 'la Caixa' on an IT level marked it out as different), alongside the synergies generated by the CECA. On the other hand, the necessary technological accommodation for changes generated in the financial environment came about and, above all, the need to be ahead of the competition. Finally, this led to a contagious effect, initiated by the changes and innovations in other countries. All in all, Spanish savings banks in the eighties were already setting themselves basic objectives, seeking efficiency and the improvement

of their services.

We must emphasise the breakthrough made by Spanish savings banks in the context of the technological changes which occurred in retail banking in the sixties, seventies and eighties. Considering this subject under a historical perspective, it would be good to evaluate the contribution of savings banks to the stability and development of the Spanish banking system in the eighties and nineties.

This reflection is substantiated in light of a situation like the present one, whereby profound corporative changes are occurring as a consequence of the financial crisis. Despite the considerations of economic cycles and policies, it is right to recognise the savings banks' contribution to the efficiency and modernisation of the financial system.

Scale and Diversification

The profound institutional change which was



The IBM 370-155 in 1971 going to online, real-time

occurring in Spanish society at the end of the seventies, including the economic reform, was going to have a huge impact on 'la Caixa' and on the group of Spanish savings banks. This new framework favoured scale economies and diversification of the institutions (territorial expansion over the whole of Spain and diversification of business). However, in order for the structural change to happen, new «up a notch» technology was necessary. In this way, they could overcome the decreasing profits they had been experiencing since 1973.

At the end of the seventies, the «second technological revolution of the institution» began. This second revolution was intense between 1979 and 1983. Technically we must underline the installation of the IMS FastPath system for z/OS system (teleprocessing management system and IBM's own databases), the design of new applications and the creation of a new structure of human resources for its service. The new technological paradigm was crucial for what has been the history of the institution until the present day. This ability to innovate has been (and is) the main factor behind 'la Caixa's' adaptation to the intense changes in companies and consumers over the two decades at the end of the century and in present times. Likewise, it is fair to point out that this is what has enabled an intense and sustained growth of the institution.

'La Caixa's' great advances started to take place in the eighties. Firstly, the development of financial self-service systems and the new payment systems (which arrived with a certain delay in Spain but which were quickly implemented), made possible by the extensive network of teleprocessing available. Secondly, the arrival of personal computers and the support for their introduction as an office terminal, which however was not without risks. Finally, the application and development of IT and communication in general.

The period which corresponds to 'la Caixa's' second technological revolution saw its IT ca-

pabilities evolve. The institution could adapt, develop and apply the technology beyond the initial starting point, such as by using its skills and abilities to deploy other technology and adapt it to its needs, or by setting new lines of action to the provider of this technology and developing its own applications. Maybe it was here that 'la Caixa's' innovatory skills were most clearly a process of 'appropriation', in a way that is similar to the characterisation by some authors of the international transfers of technology and know-how. As R.R. Nelson and S.G. Winter pointed out, companies can be understood as a repository of dexterity and skills; however, innovation has to be conceived as the result of past achievements which, in turn, feed new skills.

Retail banking in the multi-channel era

From the start of the nineties, the Spanish banking system led the world market in the density of automated teller machines (ATMs) per capita. The end of the century brought with it the arrival of Internet banking and a multi-channel development which multiplied the public's access routes to financial products. From a technological point of view, standardisation in the field of computers and IT favoured the growth of institutions such as 'la Caixa'. In this framework, a new dynamic in technological processes came about. The institution chose companies which were in a condition to develop their IT applications. These were the first steps towards outsourcing which expanded dramatically in the nineties.

With the arrival of the Internet, 'la Caixa' knew how to combine the old and the new. The collaboration of traditional channels was considered key for using the advantages which the new network provided. It was precisely the innovation applied to the multi-channel strategy which favoured the proximity to its clients. In turn, the commercial function of offices was reinforced by the new channels which favoured information flows with employees and the proc-

esses of internal information. Thanks to Internet technology, the financial terminal went beyond teleprocessing: it started to form part of a network as an issuer and recipient of information. The brand new channels of electronic banking such as online channels, mobile telephony, cordless platforms and contactless technology permitted a plural access to all services. According to Nielsen NetRatings, in 2006 the leadership of 'la Caixa' in online banking was extensive across Europe. The institution incorporated itself into various international working groups, amongst which MobeyForum stood out, an association which regrouped the main companies of the world to enable the development of mobile banking. 'La Caixa's' research in the field of payments and applications of Near Field Communication (NFC) technology is state of the art. This is the key in the system of contactless payments. In fact, it promoted

the pilot test of payments with NFC in Sitges, a locality of Barcelona (Mobile Shopping Sitges 2010) in collaboration with Telefónica and Visa Europe. Its recognition as the most innovative bank in the world in the Global Banking Innovation Awards (Bank Administration Institute and Finance) in 2011, its recent election as the Best Internet Bank in Spain 2013 by the American financial magazine Global Finance or its intervention as a host company in the international conference organised by the Mobile Forum in 2012 in Barcelona are representative of the recognition of this technological leadership.

As a conclusion, the innovation and leadership achieved by 'la Caixa' did not happen spontaneously, but rather they appear, in the eyes of historical analysis, to be the result of successive adaptations in very different situations. Maybe these are the keys to its survival and leadership.

J. Carles Maixé-Altés
University of La Coruña

Data Management: Past, Present, and Future

This paper appeared in IEEE Computer 29(10): 38-46 (1996)

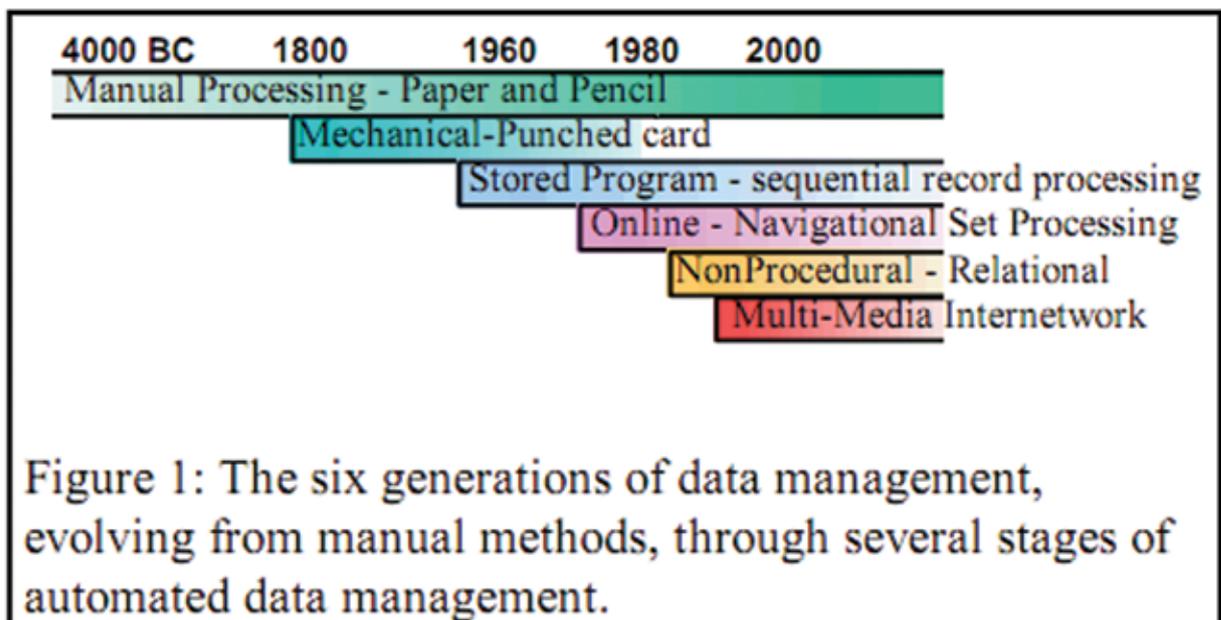
IEEE: © 1996 IEEE.

Soon most information will be available at your fingertips, anytime, anywhere. Rapid advances in storage, communications, and processing allow us move all information into Cyberspace. Software to define, search, and visualize online information is also a key to creating and accessing online information. This article traces the evolution of data management systems and outlines current trends. Data management systems began by automating traditional tasks: recording transactions in business, science, and commerce. This data consisted primarily of numbers and character strings. Today these systems provide the infrastructure for much of our society, allowing fast, reliable, secure, and automatic access to data distributed throughout the world. Increasingly these systems automatically design and manage access to the data. The next steps are to automate access to richer forms of data: images, sound, video, maps, and other media. A second major challenge is automatically summarizing and abstracting data in anticipation of user requests. These multi-

media databases and tools to access them will be a cornerstone of our move to Cyberspace.

1. Introduction And Overview

Computers can now store all forms of information: records, documents, images, sound recordings, videos, scientific data, sequential record processing and many new data formats. We have made great strides in capturing, storing, managing, analyzing, and visualizing this data. These tasks are generically called data management. This paper sketches the evolution of data management systems describing six generations of data managers shown in Figure 1. The article then outlines current trends, Data management systems typically store huge quantities of data representing the historical records of an organization. These databases grow by accretion. It is important that the old data and applications continue to work as new data and applications are added. The systems are in constant change. Indeed, most of the larger database systems in operation today



were designed several decades ago and have evolved with technology. A historical perspective helps to understand current systems. There have been six distinct phases in data management. Initially, data was manually processed. The next step used punched-card equipment and electro-mechanical machines to sort and tabulate millions of records. The third phase stored data on magnetic tape and used stored program computers to perform batch processing on sequential files. The fourth phase introduced the concept of a database schema and online navigational access to the data. The fifth step automated access to relational databases and added distributed and client-server processing. We are now in the early stages of sixth generation systems that store richer data types, notably documents, images, voice, and video data. These sixth generation systems are the storage engines for the emerging Internet and Intranets.

2. Historical perspective: The Six Generations of Data Management

2.0. Zeroth generation: Record Managers 4000BC -1900

The first known writing describes the royal assets and taxes in Sumeria. Record keeping has a long history. The next six thousand years saw a technological evolution from clay tablets to papyrus to parchment and then to paper. There were many innovations in data representation: phonetic alphabets, novels, ledgers, libraries, paper and the printing press. These were great advances, but the information processing in this era was manual.

2.1. First Generation: Record Managers 1900 -1955

The first practical automated information processing began circa 1800 with the Jacquard Loom that produced fabric from patterns represented by punched cards. Player pianos later used similar technology. In 1890, Hol-

lerith used punched card technology to perform the US census. His system had a record for each household. Each data record was represented as binary patterns on a punched card. Machines tabulated counts for blocks, census tracts, Congressional Districts, and States. Hollerith formed a company to produce equipment that recorded data on cards, sorted, and tabulate the cards [1]. Hollerith's business eventually became International Business Machines. This small company, IBM, prospered as it supplied unit-record equipment for business and government between 1915 and 1960.

By 1955, many companies had entire floors dedicated to storing punched cards, much as the Sumerian archives had stored clay tablets. Other floors contained banks of card punches, sorters, and tabulators. These machines were programmed by rewiring control panels (patchboards) that managed some accumulator registers, and that selectively reproduced cards onto other cards or onto paper. Large companies were processing and generating millions of records each night. This would have been impossible with manual techniques. Still, it was clearly time for a new technology to replace punched cards and electro-mechanical computers.

2.2. Second Generation: Programmed Unit Record Equipment 1955-1970

Stored program electronic computers had been developed in the 1940's and early 1950's for scientific and numerical calculations. At about the same time, Univac had developed a magnetic tape that could store as much information as ten thousand cards: giving huge improvements in space, time, convenience, and reliability. The 1951 delivery of the UNIVAC1 to the Census Bureau echoed the development of punched card equipment. These new computers could process hundreds of records per second, and they could fit in a fraction of the space occupied by the unit-record equipment.

Software was a key component of this new

technology. It made them relatively easy to program and use. It was much easier to sort, analyze, and process the data with languages like COBOL and RPG. Indeed, standard packages began to emerge for common business applications like general-ledger, payroll, inventory control, subscription management, banking, and document libraries.

The response to these new technologies was predictable. Large businesses recorded even more information, and demanded faster and faster equipment. As prices declined, even medium-sized businesses began to capture transactions on cards and use a computer to process the cards against a tape-based master file. The software of the day provided a file-oriented record processing model. Typical programs sequentially read several input files and produced new files as output. COBOL and several other programming languages were designed to make it easy to define these record-oriented sequential tasks. Operating systems provided the file abstraction to store these records, a job control language to run the jobs, and a job scheduler to manage the workflow.

Batch transaction processing systems captured transactions on cards or tape and collected them in a batch for later processing. Once a day these transaction batches were sorted. The sorted transactions were merged with the much larger database (master file) stored on tape to produce a new master file. This master file also produced a report that was used as the ledger for the next day's business. Batch processing used computers very efficiently, but it had two serious shortcomings. If there was an error in a transaction, it was not detected until that evening's run against the master file, and the transaction might take several days to correct. More significantly, the business did not know the current state of the database – so transactions were not really processed until the next morning. Solving these two problems required the next evolutionary step, online systems. This step also made it much easier to write applications.

2.3. Third Generation: Online Network Databases 1965-1980

Applications like stock-market trading and travel reservation need to know the current information. They could not use the day-old information provided by off-line batch transaction processing – rather they need immediate access to current data. Starting in the late 1950's, leaders in several industries began innovating with online transaction databases which interactively processed transactions against online databases. Several technologies were key to enabling online data access. The hardware to connect interactive computer terminals to a computer evolved from teletypes, to simple CRT displays, and to today's intelligent terminals based on PC technology. Teleprocessing monitors provided the specialized software to multiplex thousands of terminals onto the modest server computers of the day. These TP monitors collected request messages from a terminal, quickly dispatched server programs to process each message, and then dispatched the response back to the requesting terminal. Online transaction processing augmented the batch transaction processing that performed background reporting tasks.

Online databases stored on magnetic disks or drums provided sub-second access to any data item. These devices and data management software allowed programs to read a few records, update them, and then return the new values to the online user. Initially, the systems provided simple record lookup: either by direct lookup by record number or associative lookup by a record key.

Simple indexed-sequential record organizations soon evolved to a more powerful set-oriented record model. Applications often want to relate two or more records. Figure 2.a shows some record types of a simple airline reservation system and their relationships. Each city has a set of outgoing flights. Each customer has a set of trips, and each trip consists of a set of flights. In addition, each flight has a set of passengers.

This information can be represented as three set-hierarchies, as shown in figure 2.b. Each of the three hierarchies answers a different question: the first is the flight schedule by city. The second hierarchy gives the customer's view of his flights. The third hierarchy tells which customers are on each flight. The travel reservation application needs all three of these data views.

The hierarchical representation of figure 2.b has a major shortcoming. Storing data redundantly is expensive, but also creates update problems: when a flight is created or is altered the flight information must be updated in all three places (all three hierarchies.) To solve these problems, the information could be represented with a network data model shown in figure 2.c. Figure 2.c depicts a single database where each record is stored once and is related to a set of other records via a relationship. For example, all the flights involved in a specific customer's trip are related to that trip. A program can ask the database system to enumerate those flights. New relationships among records can be created as needed. Figure 2.c is variously called a Bachman diagram or an Entity-Relationship diagram [2], [5]. The relational diagram of figure 2 (figure 2.d) is described in the next section.

Managing associative access and set-oriented processing was so common that the COBOL community chartered a Data Base Task Group

(DBTG) to define a standard way to define and access such data. Charles Bachman had built a prototype data navigation system at GE. Bachman received the Turing award for leading the DBTG effort which defined a standard data definition and data manipulation language. In his Turing lecture he described the evolution from flat-file models to the new world where programs could navigate among records by following the relationships among the records [2]. Bachman's model is reminiscent of Vannevar Bush's Memex system [2] or the pages-and-links navigational model of today's Internet.

The COBOL database community crystallized the concept of schemas and data independence. They understood the need to hide the physical details of record layouts. Programs should see only the logical organization of records and relationships, so that the programs continued to work as the data layout was reorganized and evolved over time. Records, fields, and relationships not used by the program should be hidden – both for security reasons, and to insulate the program from the inevitable changes to the database design over time. These early databases supported three kinds of data schemas: (1) a logical schema that defines the global logical design of the database records and relationships among records, (2) a physical schema that describes the physical layout of the database records on storage

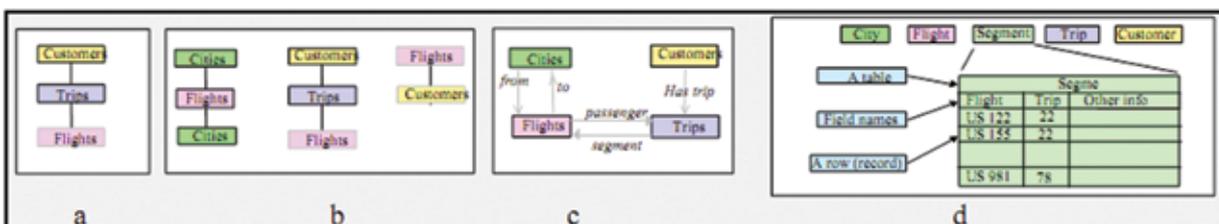


Figure 2: The evolution of data models. (a) A pure hierarchical model with records grouped under other records. (b) As the application grows, different users want different views of the data expressed as different hierarchies. (c) A Bachman diagram showing the record sets and relationships among record types. (d) The same information represented as in the relational model where all data and all relationships are explicitly represented as records. The relations are shown at the top of the figure. Some details of the Segment relation are shown at the lower right; it has a record for each flight (segment) in any passenger's itinerary.

devices and files, and the indices needed to support the logical relationships, and (3) each application was given a sub-schema exposing just the subset of the logical schema used by the program. The logical-physical-sub-schema mechanism provided data independence. Indeed, many programs written in that era are still running today using the same sub-schema the programs started with, even though the logical and physical schemas have evolved to completely new designs.

These online systems had to solve the problem of running many concurrent transactions against a database shared among many terminal users. Prior to this, the single-program-at-a-time old-master new-master approach eliminated concurrency and recovery problems. The early online systems pioneered the concept of transactions that lock just the records that they access. Transaction locking allows concurrent transactions to access different records. The systems also kept a log of the records that each transaction changed. If the transaction failed, the log was used to undo the effects of the transaction. The transaction log was also used for media recovery. If the system failed, the log was re-applied to an archive copy of the database to reconstruct the current database. By 1980 the set-oriented network (and hierarchical) data models were very popular. Cullinet, a company founded by Bachman, was the largest and fastest-growing software company in the world.

2.4. Fourth Generation: Relational Databases and Client-Server Computing 1980-1995

Despite the success of the network data model, many software designers felt that a navigational programming interface was too low-level. It was difficult to design and program these databases. E.F. Codd's 1970 paper outlined the relational model [4] that seemed to provide an alternative to the low-level navigational interfaces. The idea of the relational model is to represent both

entities and relationships in a uniform way. The relational data model has a unified language for data definition, data navigation, and data manipulation, rather than separate languages for each task. More importantly, the relational algebra deals with record sets (relations) as a group, applying operators to whole record sets and producing record sets as a result. The relational data model and operators gives much shorter and simpler programs to perform record management tasks. To give a concrete example, the airline database of the previous section would be represented by five tables as shown in Figure 2.d. Rather than implicitly storing the relationship between flights and trips, a relational system explicitly stores each flight-trip pair as a record in the database. This is the 'Segment' table in Figure 2.d.

To find all segments reserved for customer Jones going to San Francisco, one would write the SQL query:

```

Select  Flights
From    City, Flight, Segment, Trip, Customer
Where   Flight.to = "SF" AND
        Flight.segment = Segment.flight AND
        Segment.trip = Trip.trip AND
        Trip.customer# = customer.customer# AND
        customer.name = "Jones"

```

The English equivalent of this SQL query is: 'Find the flight numbers for flights to San Francisco which are a segment of a trip booked by any customer named Jones. Combine the City, Flight, Segment, Trip, and Customer tables to find this flight'. This program may seem complex, but it is vastly simpler than the corresponding navigational program.

Given this non-procedural query, the relational database system automatically finds the best way to match up records in the City, Flight, Segment, Trip, and Customer tables. The query does not depend on which relationships are defined. It will continue to work even after the database is logically reorganized. Consequently, it has much better data independence than a navigational query based on the network data model. In addition to improving data independence, relational programs are often five or ten times simpler than the corresponding navigational program.

Inspired by Codd's ideas, researchers in academe and industry experimented throughout

the 1970's with this new approach to structuring and accessing databases promising dramatically easier data modeling and application programming. The many relational prototypes developed during this period converged on a common model and language. Work at IBM Research led by Ted Codd, Raymond Boyce, and Don Chamberlin and work at UC Berkeley led by Michael Stonebraker gave rise to a language called SQL. This language was first standardized in 1985. There have been two major additions to the standard since then [5], [6]. Virtually all database systems provide an SQL interface today. In addition, all systems provide unique extensions that go beyond the standard.

The relational model had some unexpected benefits beyond programmer productivity and ease-of-use. The relational model was well suited to client-server computing, to parallel processing, and to graphical user interfaces. Client-server application designs divide applications in two parts. The client part is responsible for capturing inputs and presenting data outputs to the user or client device. The server is responsible for storing the database, processing client requests against a database, and responding with a summary answer. The relational interface is especially convenient for client-server computing because it exchanges high-level requests and responses. SQL's high-level language minimizes communication between client and server. Today, many client-server tools are built around the Open Database Connectivity (ODBC) protocol that provides a standard way for clients to make high-level requests to servers. The client-server paradigm continues to evolve. As explained in the next section, there is an increasing trend to integrate procedures into database servers. In particular, procedural languages like BASIC and Java have been added to servers so that clients can invoke application procedures running at the server.

Parallel database processing was the second unanticipated benefit of the relational model.

Relations are uniform sets of records. The relational model consists of operators closed under composition: each operator takes relations as inputs and produces a relation as a result. Consequently, relational operators naturally give pipeline parallelism by piping the output of one operator to the input of the next. It is rare to find long pipelines, but relational operators can often be partitioned so that each operator can be cloned N ways and each clone can work on $1/N$ th of the input relation. These ideas were pioneered by academe and by Teradata Corporation (now NCR). Today, it is routine for relational systems to provide hundred-fold speedups by using parallelism. Data mining jobs that might take weeks or months to search multi-terabyte databases are done within hours by using parallelism. This parallelism is completely automatic. Designers just present the data to the database system, and the system partitions and indexes the data. Users present queries to the system (as ODBC requests) and the system automatically picks a parallel plan for the query and executes it.

Relational data is also well suited for graphical user interfaces (GUIs). It is very easy to render a relation as a set of records – relations fit a spreadsheet metaphor. Users can easily create spreadsheet-like relations and can visually manipulate them. Indeed, there are many tools that move relational data between documents, spreadsheets, and databases. Explicitly representing data, relationships, and meta-data in a uniform way makes this possible.

Relational systems combined with GUIs allow hundreds of thousands of people to pose complex database queries each day. The combinations of GUIs and relational systems has come closest to the goal of automatic-programming. GUIs allow very complex queries to be easily constructed. Given a non-procedural query, relational systems find the most efficient way to execute that query.

Continuing the historical perspective, by 1980 Oracle, Informix, and Ingress had brought re-

lational database management systems to market. Within a few more years, IBM and Sybase had brought their products to market. By 1990, the relational systems had become more popular than the earlier set-oriented navigational systems. Meanwhile file systems, and set-oriented systems were still the workhorses of many corporations. These corporations had built huge applications over the years and could not easily change to relational systems. Rather, relational systems became the key tool for new client-server applications.

2.5. Fifth Generation: Multimedia Databases 1995-

Relational systems offered huge improvements in ease-of-use, graphical interfaces, client-server applications, distributed databases, parallel data search, and data mining. Nonetheless, in about 1985, the research community began to look beyond the relational model. Traditionally, there had been a clear separation between programs and data. This worked well when the data was just numbers, characters, arrays, lists, or sets of records. As new applications appeared, the separation between programs and data became problematic. The applications needed to give the data behavior. For example, if the data was a complex object, then the methods to search, compare, and manipulate the data were peculiar to the, document, image, sound, or map datatype (see figure 3).

The traditional approach was to build the datatypes right into the database system. SQL added new datatypes for time, time intervals, and two-byte character strings. Each of these extensions was a significant effort. When they were done, the results were not appropriate for everyone. For example, SQL time cannot represent dates before the Christian Era and the multi-character design does not include Unicode (a universal character set for almost all languages). Users wanting Unicode or pre-Christian dates must define their own datatypes. These simple examples, and many

others convinced the database community that the database system must allow domain specialists to implement the datatypes for their domains. Geographers should implement maps, text specialists should implement text indexing and retrieval, and image specialists should implement the type libraries for images. To give a specific example, a data time series is a common object type. Rather than build this object into the database system, it is recommended that the type be implemented as a class library with methods to create, update and delete a time series. Additional methods summarize trends and interpolate points in a series, and compare, combine and difference two series. Once this class library is built, it can be 'plugged into' any database system. The database system will store objects of this type and will manage the data (security, concurrency, recovery, and indexing) but the datatype will manage the contents and behavior of time-series objects. People coming from the object-oriented programming community saw the problem clearly: datatype design requires a good data model and

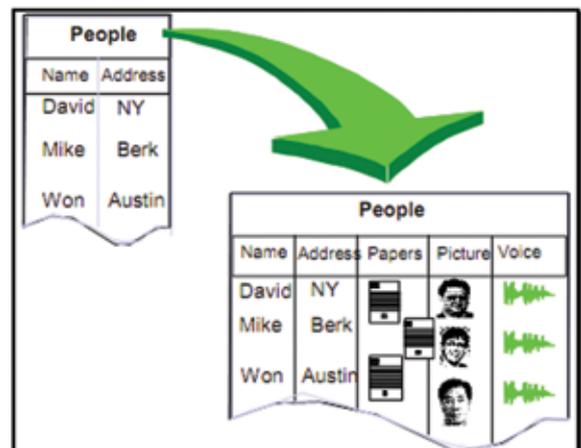


Figure 3: The transition of traditional databases storing numbers and characters into an object-relational database where each record can contain data with complex behavior. These behaviors are encapsulated in the class libraries that support the new types. In this model, the database system stores and retrieves the data and provides relationships among data items, but the class libraries provide the item behavior.

a unification of procedures and data. Indeed, programs encapsulate the data and provide all the methods to manipulate the data. Researchers, startups, and established relational database vendors have labored long and hard since 1985 to either replace the relational model or unify the object-oriented and relational systems. Over a dozen Object-Oriented database products came to market in the late 1980's, but customers were slow to accept these systems. Meanwhile, the traditional vendors tried to extend the SQL language to embrace object oriented concepts, while preserving the benefits of the relational model.

There is still heated debate on the outcome of this evolution vs. revolution in data models. There is no debate that database systems must store and retrieve objects that are managed by class libraries. The debate revolves around the role of SQL, around the details of the object model, and around the core class libraries that the database system should support.

The rapid evolution of the Internet amplifies these debates. Internet clients and servers are being built around 'applets' and 'helpers' that capture, process, and render one data type or another. Users plug these applets into a browser or server. The common applets manage sound, image, text, video, spreadsheets, graphs. These applets are each class libraries for their associated types. Desktops and web browsers are ubiquitous sources and destinations for much of the data. Hence, the types and object models used on the desktop will drive the server class libraries that database systems must support.

To summarize, databases are being called upon to store more than just numbers and text strings. They are being used to store the many kinds of objects we see on the World Wide Web, and to store relationships among them. The distinction between the database and the rest of the web is being blurred. Indeed, each database vendor is promising a 'universal server' that will store and analyze all forms of data

(all class libraries and their objects).

Unifying procedures and data extends the traditional client-server computing model in two interesting ways: (1) active databases and (2) workflow. Active databases autonomously perform tasks when the database changes. The idea is that a user-defined trigger procedure fires when a database condition becomes true. Using the database procedure language, database designers can define pre-conditions and triggers procedures. For example, if a re-order trigger has been defined on an inventory database, then the database will invoke a reorder procedure on an item anytime the item's inventory falls below the reorder threshold. Triggers simplify applications by moving logic from the applications to the data. The trigger mechanism is a powerful way to build active databases that are self-managing.

Workflow generalizes the typical request-response model of computing. A workflow is a script of tasks that must be executed. For example, a simple purchase agreement consists of a seven step workflow for: (1) buyer request, (2) bid, (3) agree, (4) ship, (5) invoice, (6) pay. Systems to script, execute and manage workflows are becoming common.

To close on the current status of data management technology, it makes sense to describe two large data management projects that stretch the limits of our technology today. The Earth Observation System Data / Information System (EOS/DIS) is being built by NASA and its contractors to store all the satellite data that will start arriving from the Mission to Planet Earth satellites in 1997. The database, consisting of remote sensor data, will grow by 5 terabytes a day (a terabyte is a million megabytes). By 2007, the database will have grown to 15 petabytes. This is a thousand times larger than the largest online databases today. NASA wants this database to be available to everyone, everywhere, all the time. Anyone should be able to search, analyze, and visualize the data in this database. Building EOS/DIS will re-

quire advances in data storage, data management, data search, and data visualization. Most of the data has both spatial and temporal characteristics, so the system requires substantial advances storing those data types, as well as class libraries for the various scientific data sets. For example, this application will need a library to recognize snow cover, vegetation index, clouds, and other physical features in Landsat images. This class library must easily plug into the EOS/DIS data manager.

The emerging world-wide library gives another challenging database example. Many institutional libraries are putting their holdings online. New scientific literature is being published online. Online publishing poses difficult societal issues about copyrights and intellectual property, but it also poses deep technical challenges. The size and diversity of this information are daunting. The information appears in many languages, in many data formats, and in huge volumes. Traditional or approaches to organizing this information (author, subject, title) do not exploit the power of computers to search documents by content, to link documents, and to cluster similar documents together. Information discovery, finding relevant information in the sea of text documents, maps, photographs, sounds, and videos, poses an exciting and challenging problem.

3. Reflections and Predictions

Advances in computer hardware have enabled the evolution of data management from paper-based manual processing to modern information search engines. This progress in hardware is expected to continue for many more years.

Data management software has advanced in parallel to these hardware advances. The record and set-oriented systems gave way to relational systems that are now evolving to object-relational systems. These innovations give one of the best examples of research prototypes turning into products. The relational model, parallel database systems, active data-

bases, and object-relational databases all came from the academic and industrial research labs. The development of database technology has been a textbook case of successful collaboration between academe and industry.

Inexpensive hardware and easy software have made computers accessible to almost everyone. It is now easy and inexpensive to create a web server or a database. Millions of people have done it. These users expect computers to automatically design and manage themselves. These users do not want to be computer operators. They expect to add new applications with almost no effort: a plug-and-play mentality. This view extends from simple desktop systems to very high-end servers. Users expect automated management with intuitive graphical interfaces for all administration, operations, and design tasks. Once the database is built and operational, users expect simple and powerful tools to browse, search, analyze and visualize the data. These requirements stretch the limits of what we know how to do today.

Many data management challenges remain, both technical and societal. Large online databases raise serious societal issues. Electronic data interchange and data mining software makes it relatively easy for a large organization to track all your financial transactions. By doing that, someone can build a very detailed profile of your interests, travel, and finances. Is this an invasion of your privacy? Indeed, it is possible to do this for almost everyone in the developed world. What are the implications of that? What are the privacy and security rules surrounding online medical records? Who should be allowed to see your records? How will copyrights work when anyone anywhere can access an electronic copy of a document? Cyberspace crosses national boundaries. What are the rights and responsibility of people operating in Cyberspace?

Our grandchildren will probably still be wrestling with these societal issues 50 years hence. The technical challenges are more tractable. There is broad consensus within the database community on the main challenges and a research agenda to attack those problems. Every five years, the database community does a self-assessment that outlines this agenda. The most recent self-assessment, called the Lagunita II report [8], emphasizes the following challenges:

- Defining the data models for new types (e.g., spatial, temporal, image, ...) and integrating them with the traditional database systems.
- Scaling databases in size (to petabytes), space (distributed), and diversity (heterogeneous).
- Automatically discovering data trends, patterns, and anomalies (data mining, data analysis).
- Integrating (combining) data from multiple sources.
- Scripting and managing the flow of work (process) and data in human organizations.
- Automating database design and administration.

These are challenging problems. Solving them will open up new applications for computers both for organizations and for individuals. These systems will allow us to access and analyze all information from anywhere at any time. This easy access to information will transform the way we do science, the way we manage our businesses, the way we learn, and the way we play. It will both enrich and empower us and future generations.

Perhaps the most challenging problem is understanding the data. There is little question that most data will be online – both because it is inexpensive to store the data in computers and because it is convenient to store it in computers. Organizing these huge data archives so that people can easily find the information they need is the real challenge we face. Finding patterns, trends, anomalies, and relevant information from a large database is one of the most exciting new areas of data management [7]. Indeed, my hope is that computers will be able to condense and summarize information for us so that we will be spared the drudgery searching through irrelevant data for the nuggets we seek. The solution to this will require contributions from many disciplines.

Jim Gray

Microsoft Research

References

- ¹ *Engines of the Mind: A History of the Computer*, J. Shurkin, W.W. Norton & Co. 1984.
- ² 'The Programmer as Navigator,' C.W. Bachman, *CACM* 16.11, Nov. 1973.
- ³ 'As We May Think,' *The Atlantic Monthly*, V. Bush, July 1945.
- ⁴ 'A Relational Model of Data for Large Shared Databanks,' E. F. Codd, *CACM* 13.6, June 1970.
- ⁵ *An Introduction to Database Systems*, 6th edition, C. J. Date, Addison Wesley, 1995
- ⁶ *Understanding the New SQL: A Complete Guide*, J. Melton, A. R. Simon, Morgan Kaufmann, 1993.
- ⁷ *Advances in Data Mining and Knowledge Discovery*, U.M. Fayyad, G. Piatetsky-Shapiro, P. Smyth, R. Uthurusamy, MIT Press, Cambridge, MA., 1995
- ⁸ 'Database Research: Achievements and Opportunities Into the 21st Century', A. Silbershatz, M. J. Stonebraker, J.D. Ullman, editors. *ACM SIGMOD Record* 25:1 (March, 1996), pp. 52--63.

Digital Preservation: A Professional Necessity

The Editor of the *EABH* requested that I provide readers with information about two books I have written about digital preservation. Digital preservation is increasingly of concern to information management professionals who work in archives and libraries, and also to those who use archives and libraries. This, of course, includes members of the European Association for Banking and Financial History. I was privileged to be a presenter at the 5th *EABH* International Summer School for Archivists in June 2013 in Venice. This Summer School's title – 'Ready or Not? Enhancing Digital Resources Management' – indicates that we now have no option but to engage with digital resources. Banking and financial historians are not exempt, needing to understand better the process of how information in digital form is managed. One part of managing digital materials – and an important one for historians to understand – is how to preserve this digital information, so that it is available for users in the future, and is in a form that can be used in the future. This is a significant challenge.



Why Digital Preservation is Important

Digital preservation is important, and bank archives are not exempt from needed to engage with it, with material increasingly in digital forms being accessioned, managed, and used. However, digital preservation poses many challenges in keeping digital materials accessible, understandable and usable in the future. Some of these challenges are:

1. Technology, such as: the large number of files formats, which change frequently; the rapid and constant introduction of new hardware and software; the unstable nature of the storage media, which deteriorate very rapidly (typically in a small number of years)
2. Characteristics of the digital materials, such as: uncertainty about which parts of the digital materials we need to keep so we can understand them in the future (for example, is the way the document looks important for understanding it?); any intellectual property and other rights-based constraints on keeping and providing access to the digital materials
3. Current lack of knowledge, including

knowledge about: the most effective strategies and techniques; costs of taking action (probably high); costs of not taking action (also high).

What does this mean in practice? All storage media (CDs, diskettes, magnetic tapes, hard disks, flash storage) will deteriorate – there are no exceptions. The computer equipment to read the storage media will not be available in the future. The file formats in which the digital information is stored will become unreadable. These add up to an urgent need to take action now, to manage digital materials in such a way that they continue to be accessible in the future. If we don't address these challenges, we will lose access to significant quantities of digital information. (In fact, we already have.) Traditional information management practices are inadequate or inappropriate for digital materials. As an example, benign neglect – based on the fact that most artifacts do not deteriorate rapidly if ignored, so preservation attention is not needed immediately – is commonly applied to archival material on paper. But benign neglect, which sufficed in the past to preserve the media on which information is stored, is not appropriate for digital materials, because digital

storage media deteriorate very quickly, and rely on complex hardware and software that need to be upgraded or replaced frequently.

The challenges don't end here. The preservation of digital materials is made even more challenging by the increasing quantity and complexity of digital materials. All sectors of society create digital materials, and these materials are entering archives at increasing rates. We have no option: we must address the challenges. If we don't, we run the very real risk of losing access to important information in digital form when it rapidly deteriorates.

So where do we begin? Although we don't yet know all there is to know about preserving digital materials, we know a lot – definitely enough to begin. The excuse that we don't know enough about digital preservation, so we can't do anything, is no longer valid. Where can we find guidance about preserving digital materials? The usual sources are available to us, especially on the Web, and the number of workshops and seminars offered is increasing all the time. However, it is often difficult for time-poor archivists to take the time to sort out what is good advice, and what is not. This is one of the reasons I have written books about digital preservation.

Two Books about Digital Preservation

- Harvey, Ross, *Digital Curation: A How-To-Do-It Manual*, New York, Neal Schuman; London, Facet, 2010. ISBN 978-1-85604-733-3 *
- Harvey, Ross, *Preserving Digital Materials*, Second edition, Berlin, De Gruyter Saur, 2011. ISBN 978-3-11-025369-6

* Please contact EABH office (info@eabh.info) if you are interested in buying a copy at a special rate

These two books summarize best practice in digital preservation. While they do not specifically cover the preservation of banking and financial materials in digital forms, they are definitely applicable to this genre.

What are the differences between these two books? In brief, one book deals with digital curation, the other with the broader concept of digital preservation. *Digital Curation: A How-To-Do-It Manual* is based on a life-cycle model and leads the reader through the steps involved in digital curation. By comparison, *Preserving Digital Materials* considers the challenges: what they are, why they are challenging, and in general terms how we can address them.

While they aren't the only books available, there is plentiful evidence that they are considered to be helpful. Students in the courses I teach about digital preservation have found them to be helpful. They have been positively reviewed, and one, *Digital Curation: A How-To-Do-It Manual*, was awarded the Society of American Archivists' Preservation Publication Award in 2011.

Digital Curation.
A How-To-Do-It Manual, 2010

The Digital Curation Centre defines digital curation as ‘maintaining, preserving and adding value digital research data throughout its lifecycle’ and notes the role of ‘active management of research data’ in reducing ‘threats to their long-term research value’ and ‘the risk of digital obsolescence’. Digital curation takes a life-cycle approach to keeping digital materials, so is interested in the whole process: from how the materials are created, right through to how they are used and re-used. The term curation is often associated with scientific data, but its practices apply very well indeed to all kinds of digital materials, including banking and financial materials.

Digital Curation: A How-To-Do-It Manual describes the basics and current practices of digital curation. Various models of the lifecycle of data are available, typically beginning with the creation of data and moving through its various stages, ending with data use. This book is based on one of these models, the Digital Curation Centre’s Curation Lifecycle Model. It was developed to describe the processes involved in digital curation, and this book is structured around it.

The audience for this book is anyone who creates digital materials, anyone who uses and re-uses digital materials, and anyone who preserves digital materials. Specifically, it is intended to be read by librarians and archivists, and by students in these disciplines; it will, hopefully, also be read by scholars planning research and collecting and using materials in digital form. It will assist readers to incorporate curation procedures into their own practice, and start developing and implementing digital curation processes.

What’s in this book? The publicity material for it describes it as an in-depth, start-to-finish explanation of the digital curation process, including

best practices for improving data access, quality, and protection, and time-saving tools such as an extensive directory of online resources, tutorials and further references in the area. There is also an accompanying web site providing checklists that can be used separately as guidance about digital curation actions, and templates that can be downloaded and used as the basis for developing digital curation plans and procedures.

Digital Curation: a How-To-Do-It Manual
is organized in three parts.

Part I: Digital Curation: Scope and Incentives introduces the main concepts and provides an overview to give a context for digital curation. Chapter 1 covers five topics: why digital curation is necessary; what digital curation encompasses; why you should be interested in digital curation; the key incentives for digital curation; and who does digital curation and what tasks they carry out.

Chapter 2 notes the changing landscape in which digital materials are created, managed and used, why we need different ways of working and new kinds of infrastructure, and the skill sets that digital curation requires.

Chapter 3 examines two key standards for digital curation: the DCC Curation Lifecycle, and the OAIS Reference Model.

Chapter 4 investigates definitions and their implications.

The actions in the DCC Curation Lifecycle Model are categorized as Full Lifecycle Actions, Sequential Actions, or Occasional Actions. These provide the structure for the rest of the book.

Part II: Key Requirements for Digital Curation describes the Full Lifecycle Actions.

Chapter 5 covers the ‘Curate and Preserve’ action, examining the aims of digital curation and how to achieve them.

Chapter 6 considers the ‘Description and Representation Information’ action – the metadata and other information essential for effective data curation.

The 'Preservation Planning' action is the topic of Chapter 7, which covers planning and policies.

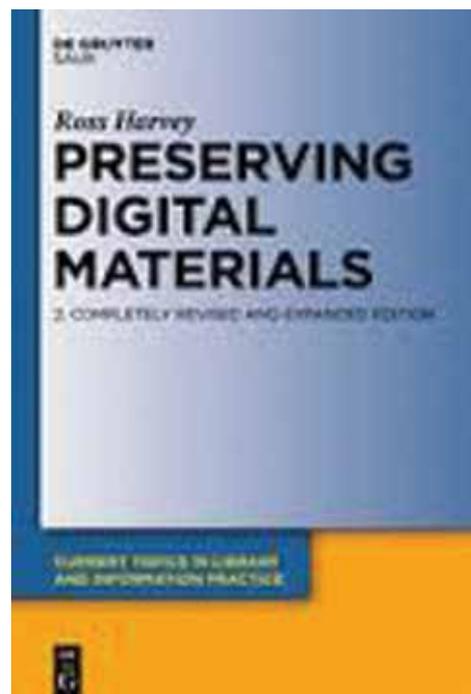
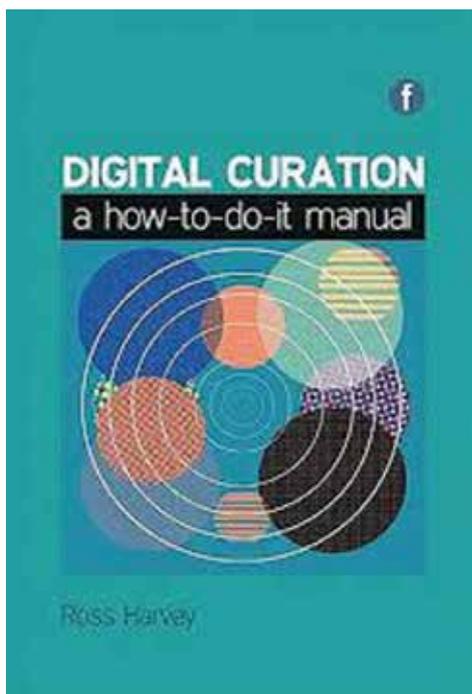
Chapter 8 describes the 'Community Watch and Participation' action, noting the central role of sharing knowledge and collaboration in digital curation.

Part III: The Digital Curation Lifecycle in Action covers the Sequential Actions and also notes the Occasional Actions.

Chapters 9 to 15 notes the Sequential Actions in order, starting with the 'Conceptualise' action, stressing the need to think about curation when planning research or creating digital objects. Following chapters examine the Sequential Actions 'Create or Receive', 'Appraise and Select', 'Ingest' (the actions required when data are taken into an archiving system), the preservation strategies and actions associated with 'Preservation Action', 'Store' (providing acceptable data storage), and the final Sequential Actions 'Access, Use and Reuse' (successful sharing and re-use of digital materials) and

'Transform'.

Does *Digital Curation: A How-To-Do-It Manual* succeed in its aims of assisting readers to incorporate curation procedures into their own practice, and start developing and implementing digital curation processes? Reviewers of it were uniformly positive. Reviews describe it as 'well-organized, easy to use, succinct, and to the point', and note that the contents of the book 'help to make digital curation much more understandable'. It is 'an extremely useful work', 'an important reference resource to the archival and library communities [which] should be mandatory reading for professionals tasked with curating digital content'. It 'makes digital curation seem like a practical and achievable approach to accomplishing a difficult task'. One reviewer even described the book as 'fascinating' and continued: 'If you are new to this subject or even if you think you know a lot about it already, this book will provide you with new insights.'



**Preserving Digital Materials.
Second edition, 2011**

Preserving Digital Materials dwells on the challenges of digital preservation and in general terms how we can address them, by comparison with *Digital Curation: A How-To-Do-It Manual*, which is more practically oriented. *Preserving Digital Materials* is about the broad area of digital preservation, not the more specific concept of digital curation. The 2011 edition of *Preserving Digital Materials* is the second edition: the first edition was published in 2005 and was one of the earliest books published that attempted an overview of digital preservation.

The book is based on four key questions:

1. Why do we preserve digital materials?
2. What digital materials do we preserve?
3. How do we preserve digital materials?
4. How do we manage digital preservation?

The question ‘why do we preserve digital materials?’ is addressed in chapters 1 to 3. These chapters examine key definitions and their relationship to ways of thinking about digital preservation, note some of the reasons why preservation is a strong professional imperative for librarians, records managers, scholars and individuals, indicate the extent of the preservation problem for digital materials, and examine the reasons why a digital preservation problem exists.

Chapters 4 and 5 investigate the question ‘what digital materials do we preserve?’ by examining the issues of selection of digital materials for preservation, and asking what attributes of digital materials we need to preserve.

Chapters 6, 7 and 8 address the question ‘how do we preserve digital materials?’ Chapter 6 gives an overview of digital preservation strategies, and chapters 7 and 8 describe specific strategies.

The question ‘how do we manage digital pres-

ervation?’ is covered in chapters 9 and 10. Chapter 9 describes major digital preservation initiatives and collaborations.

Chapter 10 examines some of the issues that digital preservation faces in the future.

Underlying the text of *Preserving Digital Materials* is the premise that digital preservation requires new ways of thinking and new practices. There needs to be a new paradigm for digital preservation, because preservation in the analogue world is based on stable physical artifacts. Digital preservation starts by assuming that the physical artifact (the diskette, hard drive, CD or magnetic tape) will deteriorate very quickly, so it is vital to move the digital information off it and into a managed environment.

The Introduction to the second edition of *Preserving Digital Materials* stresses the importance of digital preservation, noting that ‘preservation of digital materials is the single most serious issue faced by information professionals and that it is also of considerable importance to scholars and scientists, as well as to individuals’, but that ‘most practitioners do not have the time or the technical expertise to evaluate and synthesize’ the large amounts of material about digital preservation. *Preserving Digital Materials* provides these time-poor readers with an introduction to the principles, strategies and practices applied by information professionals, scholars, and individuals to the preservation of digital materials. It hopes to improve digital preservation practice by focusing on current practice, taking stock of what we know about the principles, strategies and practices that prevail, and describing the outcomes of recent and current research.

The first edition of *Preserving Digital Materials*, published in 2005, was described by one reviewer as a ‘comprehensive examination of the landscape of preservation’. By 2011 it was apparent that an update was required, because of the significant changes in the field since 2005 and the expanded understandings of practitioners of digital curation, based on research find-

ings. The aims of both editions are the same: to provide an introduction to the preservation of digital materials in order to inform practice in cultural heritage institutions, and to provide a framework within which to reflect on digital preservation issues. The intended audience is also the same: information professionals who seek a reference text, practitioners who want to reflect on the issues, and students in the field of digital preservation.

However, the two editions differ in several areas. The second edition provides a more international perspective, paying greater attention to major initiatives in the UK, the EU and the US. It takes account of developments since 2005, such as the consolidation of digital preservation practice (so that we can now begin to discuss 'standard' practice) and research and development projects funded by the EU and in the US. New topics in the second edition include cost modeling and the cost of digital preservation, skills identification and education and training requirements and initiatives, and personal digital archiving. Significant publications since 2005 are also noted, such as *Long-Term Preservation of Digital Documents: Principles and Practices* (Borghoff et al., 2006), *Digital Preservation* (Deegan and Tanner, 2006), *the Workbook on Digital Private Papers* (Paradigm Project, 2008), and *Digital Curation* (Harvey, 2010).

The point was made earlier in the article that there is currently a lack of knowledge about how to preserve digital materials. This cannot be an excuse for ignoring the issues and taking steps to address them. Many communities, among them librarians, archivists and records managers, are energetically seeking solutions to the challenges of digital preservation. The result is that it is now possible to state with a high degree of certainty what steps we can take now, even though we do not know all we would like to about digital preservation. *Preserving Digital Materials* describes best practice, but is not a how to do it manual, so it is not the place to learn how to apply the technical procedures of digital preservation.

Did the second edition of *Preserving Digital Materials* succeed in providing an introduction to the preservation of digital materials? Reviewers thought that it did, and as with *Digital Curation: A How-To-Do-It Manual*, were uniformly positive. It is an 'important survey of the digital preservation landscape', 'at its heart, a tour de force review of literature documenting the many projects and programs that have advanced digital preservation practice over the past fifteen years.' It was considered to be 'comprehensible, coherent and clear', and 'an accessible, easy to read volume'. It 'will appeal to both the relative novice in the field and to those who have been dealing with these issues on a day-to-day basis for many years', recommending it 'as a suitable teaching aid for any educational initiative and a guide book to complicated issues for all practitioners and even to those involved in digital preservation research.' One reviewer made a comment that I wish I could express so succinctly, noting that digital information is now ubiquitous. 'With ubiquity comes dependence. With dependence comes risk. Digital preservation is now everyone's problem.'

Conclusion

The challenges of digital preservation are numerous and are very real to archivists, historians, and in fact everyone who creates and manages digital materials. With *Digital Curation: A How-To-Do-It Manual* and *Preserving Digital Materials* I have attempted to provide guidance about what the challenges are and how to address them. *Digital Curation: A How-To-Do-It Manual* is the more focused of the two, taking the narrower practice of digital curation and a life-cycle approach as its basis. *Preserving Digital Materials* is not a manual of practice and does not claim to provide solutions to digital preservation problems. Instead, it lays out the essential issues that the cultural heritage community must take account of, and suggests

the path that lies ahead.

I consider that both of them are essential reading (of course!): first read *Preserving Digital Materials* to get the overview, then *Digital Curation: A How-To-Do-It Manual* for its more practical approach. If you read only one of them, the choice depends on what you want out of it: a more practical book; or a more general text that considers the issues and takes a historical approach.

And if after reading these two books you want to read more, consider a new book to be published by AltaMira Press in the first half of 2014. Noted above in this article is the premise that a

new paradigm for digital preservation is needed; this new book explores the contention that in fact the principles on which preservation of analogue materials is based apply equally, with some modification, to the preservation of digital materials. Its title is *The Preservation Management Handbook: A Twenty-First Century Guide for Libraries, Archives and Museums*. Edited by Ross Harvey and Martha Mahard, who have also contributed the first six chapters, and with contributions from thirteen specialists on preservation of specific kinds of media, it is an attempt to reconcile the preservation practices of non-digital material and digital preservation.

Dr. Ross Harvey

RMIT University, Melbourne

ross.harvey@rmit.edu.au

<http://elibank.net>



Video lecture

Digital Curation: Getting Digital Objects into the Archive

Ross Harvey, Simmons College Graduate School of Library and Information Science (GSLIS)

[Watch Online: Getting Digital Objects into the Archives Part 1](#)

[Watch Online: Getting Digital Objects into the Archives Part 2](#)

The Centre for the Investigation of Financial Electronic Records: Investigating the Risks Related to Financial Records, Information and Data

The Centre for the Investigation of Financial Electronic Records (CIFER) was founded in 2008 by Dr. Victoria Lemieux and conducts research, hosts educational and networking events, engages in advocacy and provides research products and services related to financial records and the records of financial institutions.

CIFER was founded on the premise that, in today's complex operating environment, global financial institutions and financial systems face a growing number of risks associated with business records. Insufficient understanding and control of business records is at the root of many of the current risks faced by financial institutions: data leakage, lack of integrity of transaction records, legal discovery challenges, data protection and confidentiality associated with trans-border data flow, and records retention is-

ues to name but a few. Weaknesses in records and data have been identified as issues in the recent global financial crisis as well.

The key to resolving many of these issues is in developing a clearer understanding of financial records – their creation, communication, storage, and disposal, as well as the people and systems that shape these processes. From this understanding the principles and practices associated with a strong and effective program of managing and controlling the risks associated with records can be achieved.

Since 2008, CIFER's interdisciplinary team of researchers has undertaken several research projects designed to increase understanding of financial records, information and data and their relationship to risk in financial institutions and financial systems. Below are some of the major projects CIFER has undertaken.



Fig. 1: The Challenge of organizing unstructured documents

Addressing Records and Information Challenges in Financial Institutions

a. Implementation of Electronic Records Management Systems

Implementation of a digital record keeping system, such as the introduction of an Electronic Document and Records Management System (EDRMS), is an activity that many financial institutions undertake. Such projects involve many types of risk, and their success relies upon careful assessment and management of these risks. While organizations frequently pay close attention to identifying technical risks, such as whether a particular EDRMS system adheres to recognized functional requirements (e.g., MoReq), or to addressing financial risks in the business case for an EDRMS, they very often fail to fully assess organizational and human behavioural risks. Yet, in many cases, these are the types of risk that are most challenging and pose the greatest threat to a successful project outcome.

CIFER has developed a questionnaire that aims to fill a gap by providing those embarking on or at the preliminary stages of a digital record keeping initiative with a tool to assess their exposure to common organizational and human behavioural risks. The questionnaire consists of a set of questions that test for risk factors that our research indicates are linked to known organizational and human behavioural risks. By assessing the risk areas - governance, training, change management and human behavioural dimensions - that influence records management in an organization, risk areas can be identified and mitigated. Those organizations that are further along in the process of implementing a digital record keeping system may still benefit from completing this questionnaire, but may find that some of the questions are not perfectly aligned to their situation. For those interested in completing the questionnaire, it should take approximately 20-25 minutes. Please be sure to indicate a response for each question – reflecting on how each

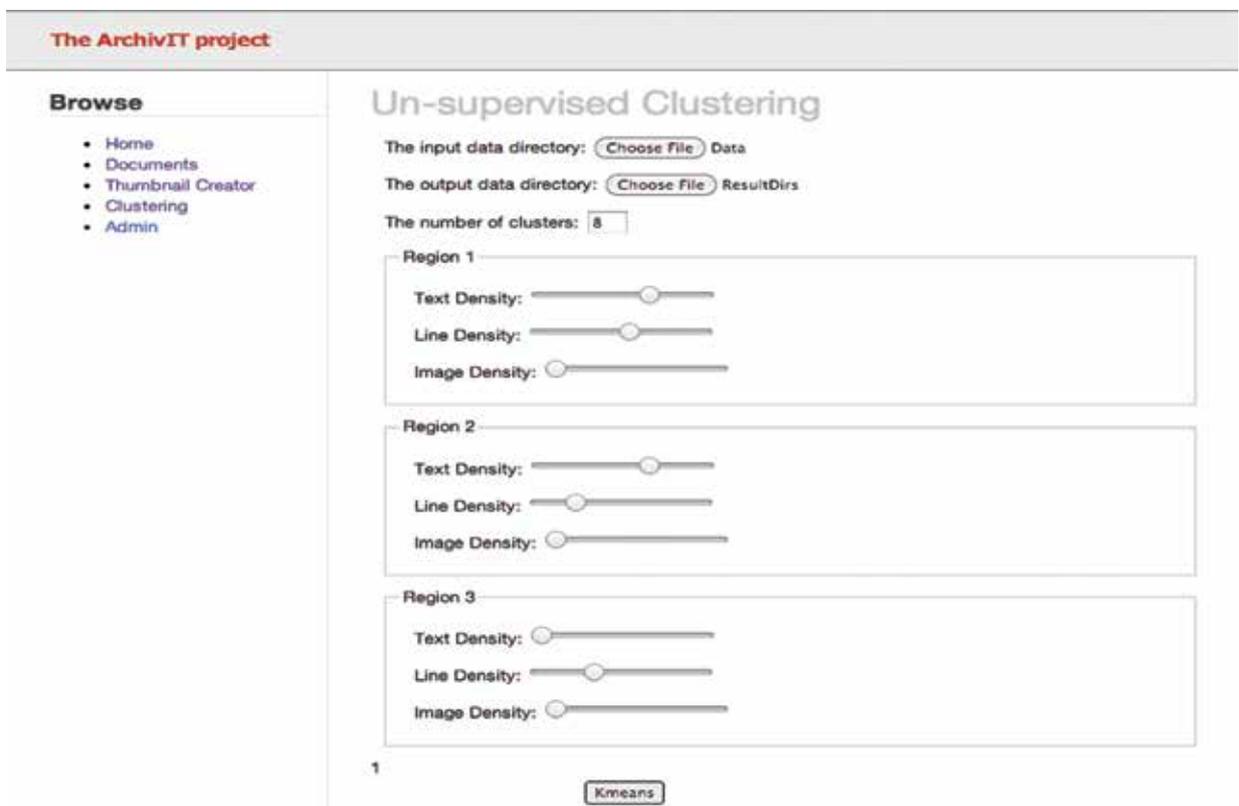


Fig. 2: Screenshot of the ArchivIT application. Users may adjust the weight given to different features used to perform an initial 'unsupervised' clustering of documents.

question relates to records management (RM) in your organization. At the end of the questionnaire, the risk level that your organization faces when undertaking digital records management will be summarized, with specific explanations of the highest risk areas. It is, however, ultimately a matter for each organization to decide their risk tolerance and how best to manage identified risks. The questionnaire is available at the following link: http://www.ciferresearch.org/risk_tools/.

b. Organizing Voluminous Archival Documents

There's no question that we are all dealing with more data than we can manage to organize and make sense of. The value of data is often locked in large volumes of unstructured documents. That's certainly a problem faced by archivists who increasingly must arrange and describe large corpora of unstructured digital content.

CIFER's ArchivIT project focuses on how to ex-

plot the value in this unstructured digital data by means of classification and organization using visual analytics (VA), which is the science of analytic reasoning facilitated by interactive visual interfaces (Thomas and Cook, 2005) that seeks to leverage the strengths of both human and machine intelligence.

As a first step, CIFER's researchers undertook a study to understand the tasks and data of users (i.e. archivists) in the target domain and how VA might be applied to address challenges (Lemieux, 2013a). This is critical for the effective application of VA to any domain of interest and requires close collaboration between VA system designers and users in the domain of interest. From this study we learned, among other things, that archivists rely on spatial attributes, such as the layout of text on a page and the inclusion of graphical elements such as crests, seals and images, of documents in the process of category learning.

To take advantage of this classification strategy, our ArchivIT application is able to mine spatial

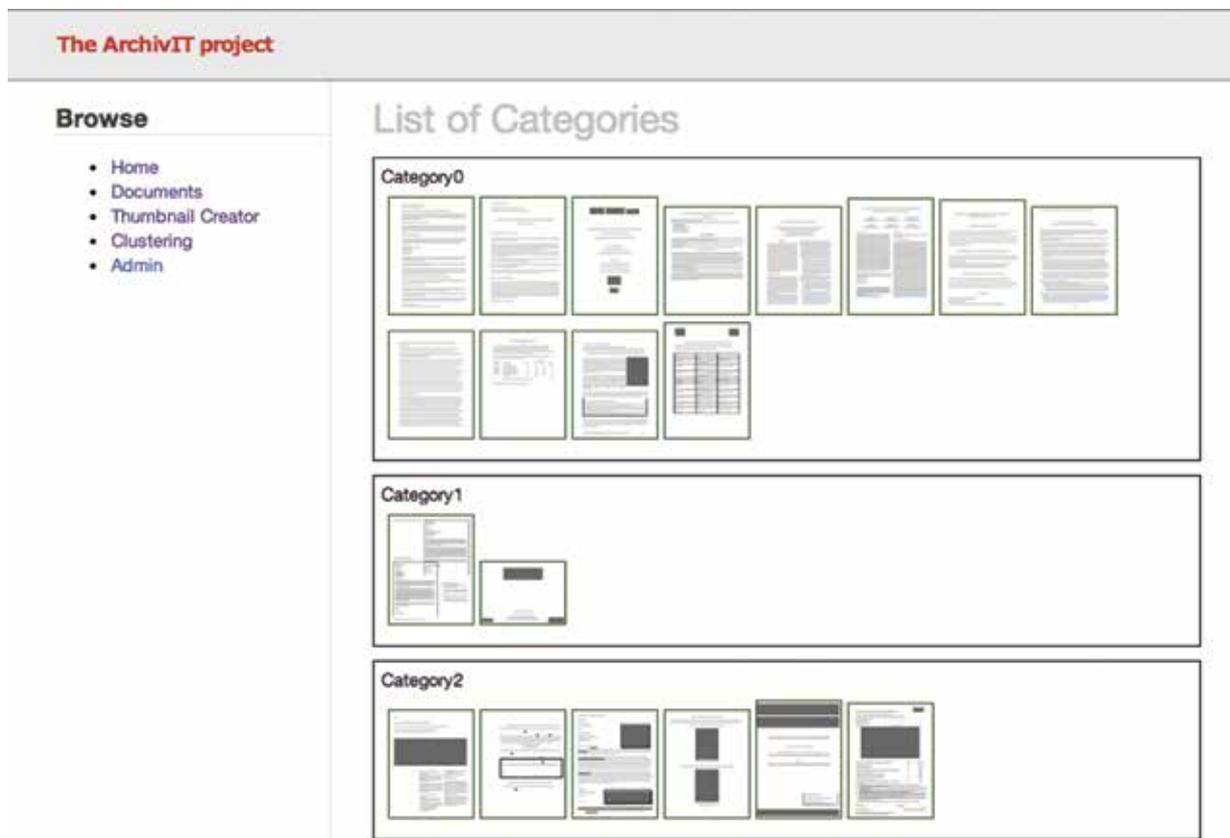


Fig. 3: Screenshot of the ArchivIT application, showing clusters of .pdf thumbnails.

attributes of .pdf documents and scanned images of documents to create document categories. Our application permits the archivist to interact with the system to adjust the weight of specific spatial attributes within three regions of the documents (protocol, text, and eschatacol) to tune an initial unsupervised clustering of a sample of documents in a corpus.

In a future version, the archivist will also be able to choose from a range of algorithms for the initial unsupervised generation of classification categories. After the initial unsupervised clustering, ArchivIT presents the archivist with thumbnails of documents that provide an overview of the special layout of documents in a category and allows the archivist to move documents between categories. The archivist will then be able to click through to view original .pdfs and scanned images. In this way, the archivist 'trains' the application to classify correctly.

ArchivIT then uses machine learning to complete the classification of documents and

presents them as a visualization with which archivists are able to interact to explore the clusters and the results of the classification. The ArchivIT application is designed to support this as an interactive practice that combines machine learning with archival intelligence (Yakel, 2000) to arrive at an optimal categorization of the documents as judged by the archivist.

To find out more about the specific spatial attributes that archivists find most useful in classifying documents, we are conducting an eye-tracking study of archivists and non-archivists as they arrange and describe unstructured documents. The data we gather from our eye-tracking study will help us understand more about how archivists use spatial attributes of documents to classify them. In turn, we can use this information to "tune" the algorithms we are using in our ArchivIT system. We hypothesize that this "human vision" guided approach to the tuning of our algorithms will achieve better classification results than the results that can be achieved with "untuned" algorithms.



Fig. 4 Proposed final categorization using machine learning – still in development

Guidelines for Managing the Records of Financial Investigations and Litigation

Financial securities regulators must properly manage and maintain investigative records to meet their legal requirements. Increasing amounts of evidence in physical and digital formats places growing strains on these organizations to satisfy their legal obligations. Lack of sufficient controls over the management of investigative records may ultimately result in unfavorable legal actions and/or negative publicity for the organization.

Based on a research project that aimed to develop guidelines for financial securities regulators for managing their investigative records, CIFER produced a paper that articulates the importance of proper management of investigative records; discusses the management practices of different financial and securities regulators; and establishes a baseline of recommendations for how financial and securities regulators may improve their case management practices. Key findings of the research project included the following observations:

- There are no established best practices for the proper management of investigative records

- for securities regulators;
- The management of investigative records depends largely on the context of the organization and its specific legal requirements;
- Regulatory organizations must be consistent when documenting acquired evidence to ensure chain of custody and legal admissibility; and
- Regulatory organizations rely on a combination of recordkeeping systems to manage the variety of evidence they acquire.

Based on the findings, the study recommended that financial and securities regulator should:

- Create a case management unit that documents acquired evidence and tracks the use of evidence throughout the organization;
- Defines the purposes and authorities of its records and evidence management systems;
- Establish concise documentation for logging, tracking, and using evidence in litigation;
- Educate staff, investigators and litigators, in identifying evidential materials that are high at risk for degradation;
- Train staff, investigators and litigators, in the processes they should take when they iden-

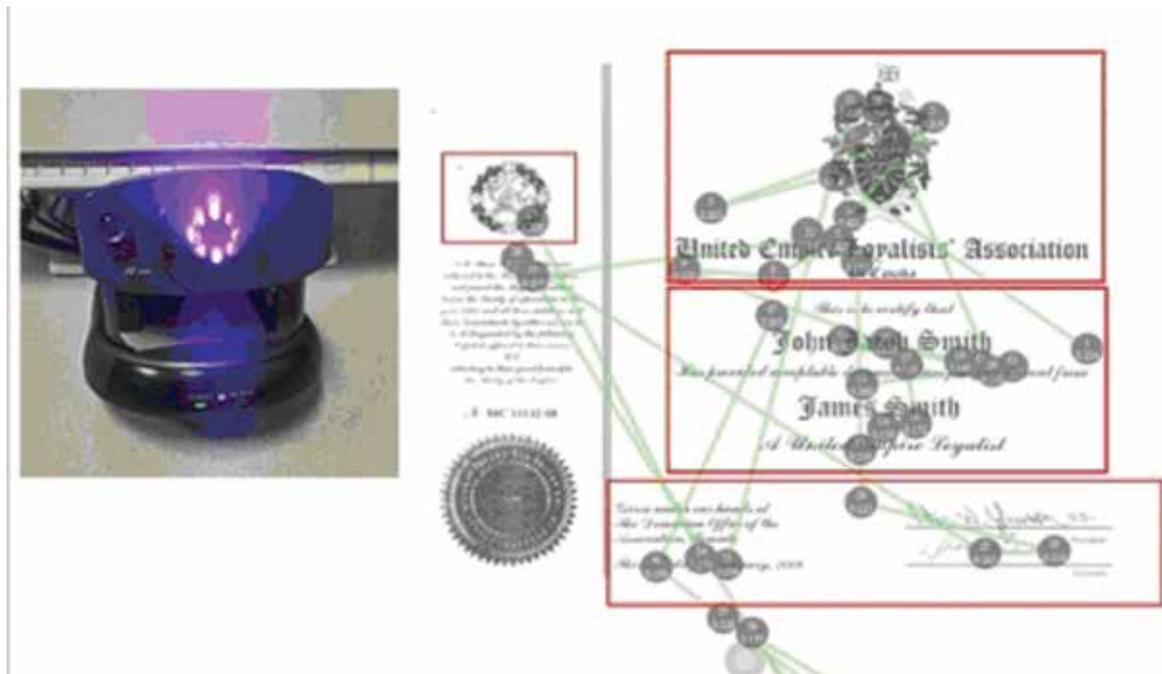


Fig. 5: Screenshot of the results of an eye tracking experiment showing the archivist's gaze pattern as s/he reads an archival document

- Create a preservation policy/plan to ensure the long-term access of electronically stored information (ESI) at high-risk of degradation; and
- Review their positions toward outsourcing the scanning of evidentiary documents within a risk management framework on a routine basis.

By adopting these recommendations, financial security regulators will strengthen the management of their investigative records, and, although these guidelines were developed with regulators in mind, they may also prove useful to financial institutions in managing records related to litigation. These practices could enable such organizations to more effectively and efficiently handle legal evidence.

Monitoring Financial Stability and Managing Systemic Risk

a. Improving Analytics

The global financial crisis has drawn attention to inadequacies in market participants' and

financial supervisors' access to information (FSB/IMF, 2009).

In 2010, CIFER hosted an interdisciplinary workshop to explore these issues, and some potential solutions. The workshop brought together financial supervisory experts and financial market participants with computer scientists, cognitive psychologists, behavioural economists, sociologists, and archival scientists to discuss how records and information issues contributed to the global financial crisis and what needed to change to prevent these issues from arising again. Experts and students came together to discuss the following topics: 1) Governance – the governance structures that need to be in place to ensure that records and information needed for effective financial analysis and risk management are available to all market participants; 2) Analytics - ways of representing and communicating about financial records and information (knowledge representation) and use of visualizations in the analysis of financial records and information (visual analysis); and 3) Life cycle management – the long-term availability and preservation of financial records and information. Papers from the conference were

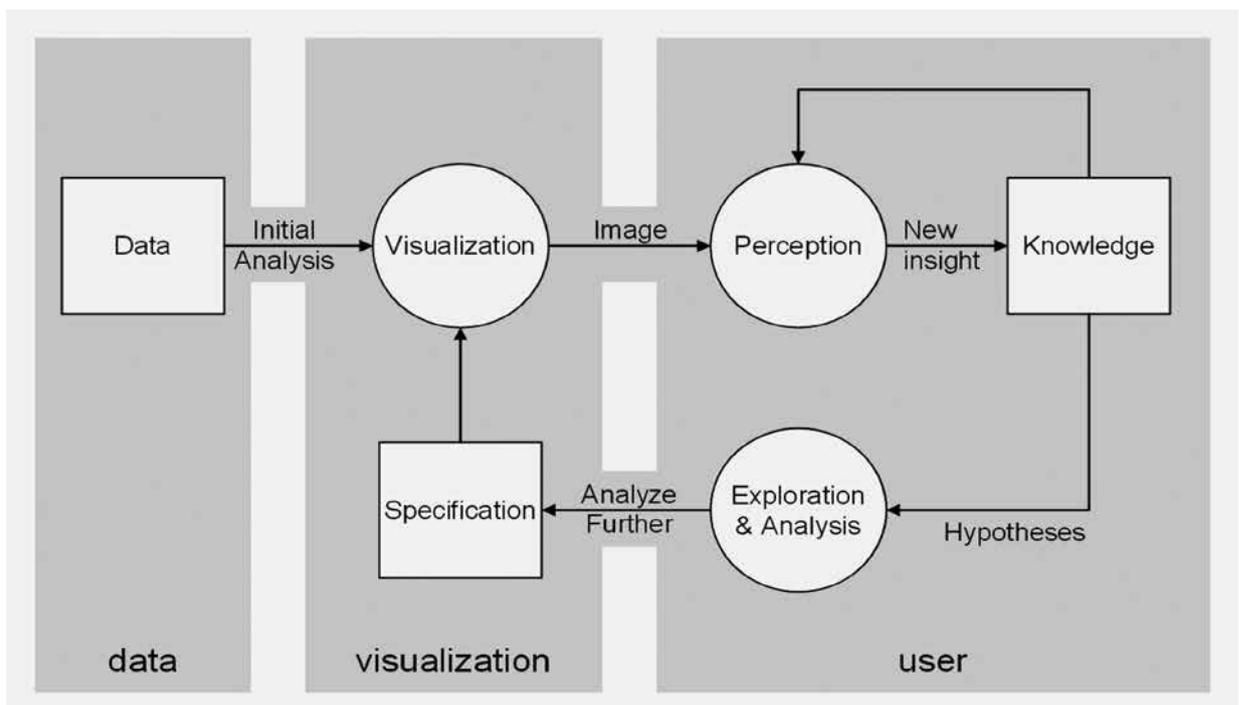


Fig. 6: The sense making loop for visual analysis based on a simple model of visualization

published in Financial Analysis and Risk Management: Data Governance, Analytics and Life Cycle Management (Lemieux, 2013b).

Since the crisis, market participants and macroprudential supervisors have been working on addressing a number of data gaps. One such initiative has been the establishment of a global Legal Entity Identifier (LEI), designed to create and apply a single, universal standard identifier to any organization or firm involved in a financial transaction internationally and now being applied to derivatives trades (FSB, 2012). In late 2011 to February 2012, CIFER participated in the development of a new global standard on Legal Entity Identifiers - ISO 17442 - and the establishment of the Global Legal Entity Identifier System.

As set out in a report of the Financial Stability Board of 8 June, 2012, '[The LEI] system [is intended to] provide a valuable 'building block' to contribute to and facilitate many financial stability objectives, including: improved risk management in firms; better assessment of micro and macroprudential risks; facilitation of orderly resolution; containing market abuse and curb-

ing financial fraud; and enabling higher quality and accuracy of financial data overall' (FSB, 2012, p. 1).

An ongoing CIFER project is considering whether the LEI number is equipped to support the use cases for its existence. Our research, undertaken under the auspices of the Global Legal Entity Identifier Watch Project, suggests that it is not. In the course of harvesting, integrating, and visually analyzing data from the first two official global LEI registration authorities – that operated by the Depository Trust and Clearing Corporation and Swift (CICI Utility) in the US and WM Datenservice in Germany -we have observed that the system is failing on three fronts. First, though the LEI data does provide insight into patterns of global tax avoidance schemes and shadow banking activities, because validated ownership hierarchy data is not universally linked to the LEI registration data, the LEI system does not ultimately support a better understanding of counterparty risks and financial fraud. Second, as each country-level registration authority is using its own data schema and as data

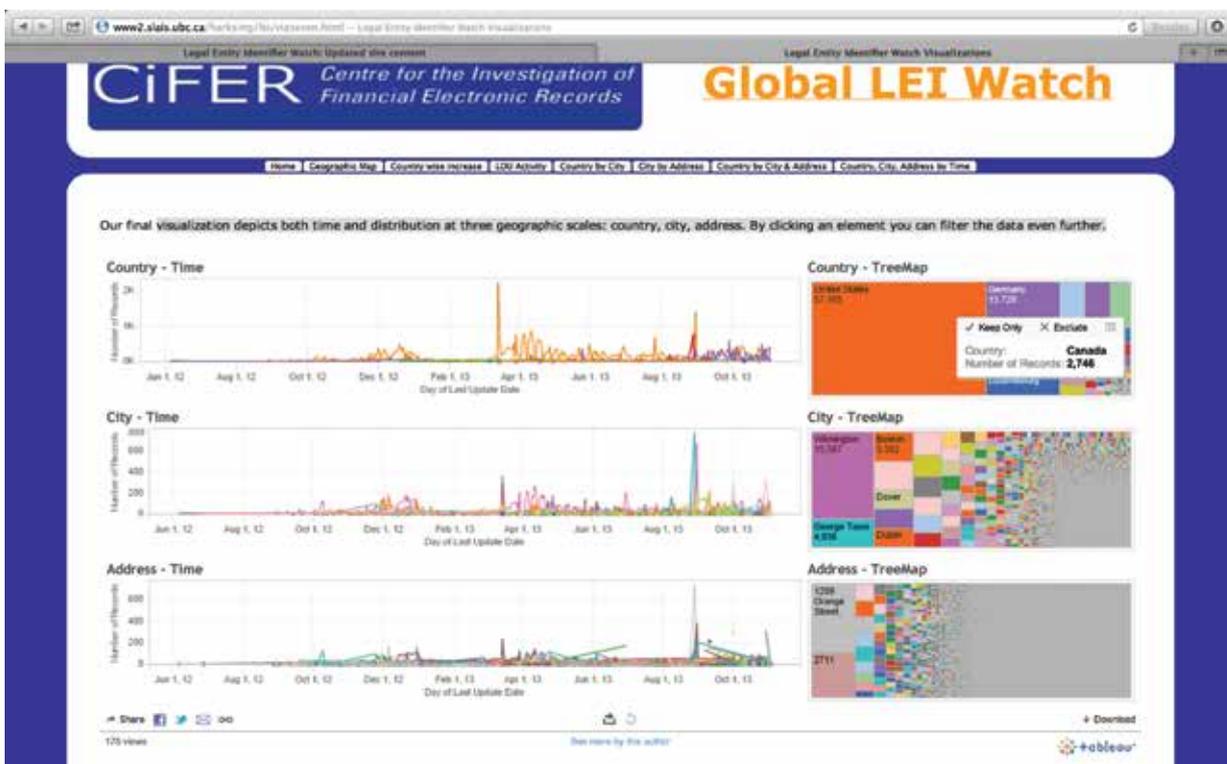


Fig. 7 CIFER's Global Legal Entity Identifier Watch website. The site is currently in beta and will go live in January 2014.

entry is unvalidated, a data 'Tower of Babel' is emerging that will not support transparency of global financial markets. A third issue, that has not yet received attention from those involved in the development of the LEI system, is the inability of potential users of LEI data, whether they are market participants concerned with improving reference data, financial supervisors concerned with monitoring financial stability, or members of the public concerned with transparency and accountability, to make sense of vast quantities of LEI data, especially when the real potential of such data may lie in linking it to other voluminous and dynamic sources of financial information (e.g., data from swaps data repositories (SDRs)). The limits of human cognition may prevent users from making effective use of the data without application of tools to enhance human information processing capabilities. Traditionally, computational tools have been used to provide a boost to human capabilities. While computational approaches to data analysis certainly continue to have their place, that Visual Analytics can also be used to make better sense of LEI data.

To that end, CIFER has established the Global LEI Watch Project to create a series of interactive visualizations of the global LEI system that would allow users to answer specific questions about the LEI, as well as 'detect the unexpected' (Keim et al, 2008). Our approach followed van Wijk's (2005) 'visual sense making loop', which sets out the process of moving from data to knowledge (see Figure 2) through dialogic interactions with visual representations of LEI data.

Users of the website are able to interact in a number of ways with the visualizations for the purposes of sense making and knowledge discovery. Following Schneiderman's (1996) information visualization mantra of 'Overview first, zoom and filter, then details-on-demand', for example, an analyst may choose to view the visualization depicting both time and distribution at three geographic scales: country, city,

and address. Brushing over an element (e.g., a coloured square in the Treemap visualizations), the analyst is able to retrieve details on demand (see Figure 7). The analyst can explore the data by clicking on the element to filter the data even further (e.g. show only the LEI registration data for Canada). This view may prompt the analyst to ask a question ('I wonder if there are any registrations for Vancouver?'), and to brush over elements to find the answer ('Yes, there are registrations for Vancouver'). This may prompt additional questions ('I wonder what addresses they are for?') and further interactions (e.g., brushing, zooming and filtering) to again find an answer and generate a new question(s) ('2329 West Mall . . . Hmmm . . . I wonder what business that is?'). A quick trip to Google Maps indicates that this is the address for Building Services at the University of British Columbia, prompting further questions ('Why would Building Services need an LEI number?'), which prompts new hypotheses and further investigation using additional sources in an iterative, interactive sense making loop.

Good data is necessary for the effective monitoring of global financial stability, but even good data is useless if human analysts lack the information processing capabilities to make sense of it. Computational solutions to addressing human information processing capabilities alone, though they continue to be helpful, are not the answer. They seldom support the sort of exploration of voluminous, dynamic and ambiguous data needed to conduct analysis in a domain, such as global financial stability monitoring, where the questions are ill defined and the scope of the task is uncertain. CIFER's Global Legal Entity Identify Watch project is one example of the Centre's ongoing research program on the utility of Visual Analytics to monitoring the stability of the global financial system and. Preliminary evidence from our project suggests that even relatively unintelligent interactive information visualizations, if made available in

the public domain have the potential to improve systemic risk analysis. If, as the evidence from our project suggests, transparency can be improved through the application of relatively unintelligent interactive information visualizations with only one type of data, we believe that much more can be achieved when such visualizations are combined with advanced computational analytics and additional types of data. We are in the process of exploring these possibilities with several other projects.

b. Digital Preservation as a Financial Stability Issue

Financial records are documentary heritage as important as any other form of documentary heritage. Thus the future understanding of our times will very much depend on the preservation of our financial records. The world of finance is increasingly a digital one. In this new world, wealth is generated and tracked in digital 'financial memory systems' (de Soto, 2000). Weaknesses in global financial memory systems were at the heart of the Global Financial Crisis and efforts to correct these weaknesses will be at the heart of global financial recovery. The world needs authentic and reliable memory systems so as to have the facts necessary to see risks and to protect global financial stability and growth. Research indicates that in the absence of financial memory systems, financial markets seize up and do not generate the wealth that they potentially could and that good records encourage financial trade. Without strong memory systems we are likely to find our way back to the Global Financial Crisis, as recent failures of major commodities brokers suggest.

Where the incentives are not there within financial institutions to create and maintain such memory systems, there is a need to structure a financial system, through a balanced combination of market driven and regulatory measures, to encourage good recordkeeping. Moreover, as the UNESCO declaration on the preserva-

tion of world documentary heritage urges, we need measures aimed at preserving society's financial memory systems to ensure that they remain accessible to Economic Historians and other researchers. Accordingly, access to financial memory systems, especially those in the public domain, should be free of unreasonable restrictions. CIPHER's investigations suggest that the world's financial memory systems are at risk of being lost to posterity (Lemieux, 2013c). Just as with other records, contributing factors include the rapid obsolescence of the hardware and software that brings it to life, uncertainties about resources, responsibility and methods for maintenance and preservation, and the lack of supportive legislation. The archival community has a role to play in encouraging efforts to address these sources of risk to financial memory systems. To preserve society's financial digital heritage, measures will need to be taken throughout the financial digital information life cycle, from creation to access. Long-term preservation of financial memory systems begins with the design of reliable and trustworthy systems and procedures that will produce authentic and stable digital objects that adequately represent firm's financial transactions. The many new regulatory measures aimed at strengthening global financial data standards will help address this issue to an extent, but much more needs to be done. For example, strategies and policies to preserve financial memory systems at times of business as usual and in times of crisis need to be developed, taking into account the level of urgency, local circumstances, available means and future projections. Cooperation among holders of copyright and intellectual property rights, and other stakeholders, in setting common standards and compatibilities, and resource sharing, will facilitate this. As with all documentary heritage, selection principles are critical, although the main criteria for deciding what digital materials to keep would be their significance and lasting cultural, scientific, evidential or other value, we will lose

important knowledge about the causes of the global financial crisis, if these selection criteria are made piecemeal, by individual firms or archives, or without proper consideration of how the various parts of the global financial system in general and the securitization system that brought the global financial system to its knees in 2008 operates. Moreover, these selection decisions and any subsequent reviews need to be carried out in an accountable manner, and to be based on defined principles, policies, procedures and standards explicitly designed for financial records. In addition, macroprudential supervisors need to work together to develop appropriate legal and institutional frameworks to secure the protection of the world's financial memory systems. With the proper will, this can be accomplished through the same mechanisms as such others standards as global legal entity identifiers (i.e. through the efforts of the G20, the ISO, and the FSB); however, awareness of the need to take action to preserve the world's financial memory systems has to exist, alongside the political will to do so.

Conclusion

Risks arising from financial records, information and data continue to present many challenges. Only through investigating the underlying sources of the challenges, most often rooted in the way that records and information are created, managed, stored, and used (or not used), can these challenges be addressed and can the risks be reduced. CIPHER's interdisciplinary team of researchers is working to conduct such investigations. This article has outlined a number of past and current research work aimed at exploring the relationship between financial records and risk. Those interested in learning more about these and other CIPHER research projects are invited to consult our website (www.ciferresearch.org) or contact us (ciferresearch@gmail.com).

Victoria L. Lemieux

*Director, Centre for the Investigation of
Financial Electronic Records (CIPHER Research)*

Assistant Professor

*School of Library, Archival
and Information Studies,*

The University of British Columbia

References

- Hernando de Soto (2000) *The Mystery of Capital: Why Capitalism Triumphs in the West and Fails Everywhere Else*. NY, NY: Basic Books.
- Financial Stability Board (2012) *A Global Legal Entity Identifier for Financial Markets*. Retrieved from http://www.financialstabilityboard.org/publications/r_120608.pdf on December 15, 2013.
- Financial Stability Board and the International Monetary Fund (FSB/IMF) (2009) *The financial crisis and information gaps*. Retrieved from <http://www.imf.org/external/np/g20/pdf/102909.pdf> on December 15, 2013.
- Keim, D.A., Andrienko, G., Fekete, J-D, Görg, C., Kohlhammer, J., and Melancon, G. (2008) 'Visual Analytics: Definition, Process and Challenges.' In Kerren et al., *Information Visualization*, 154-75. Berlin: Springer-Verlag.
- Lemieux, Victoria L. (2013a) 'Visual Analytics, Cognition and Archival Arrangement and Description: Studying Archivists' Cognitive Tasks to Leverage Visual Thinking for a Sustainable Archival Future.' *Archival Science* (September). DOI: 10.1007/s10502-013-9212-y.
- Lemieux, Victoria L. (2013b) 'Records and Information Management for Financial Analysis and Risk Management: An Introduction.' In *Financial Analysis and Risk Management: Data Governance, Analytics and Life Cycle Management*, edited by Victoria L. Lemieux. Frankfurt: Springer, 2013, 1-12. ISBN: 978-3642322310.
- Lemieux, Victoria L. (2013c) 'Financial Records and Their Discontents: Safeguarding therecords of our Financial Systems.' In *Proceedings of the UNESCO Conference on the Memory of the World in the Digital Age: Digitization and Preservation*, Vancouver, 26-28 September, 2012, edited by Luciana Duranti and Elizabeth Shepherd. Paris: UNESCO, 2013, 700-712. Accessible at <http://www.unesco.org/new/en/communication-and-information/events/calendar-of-events/events-websites/the-memory-of-the-world-in-the-digital-age-digitization-and-preservation/>.
- Shneiderman, B. (1996). 'The eyes have it: a task by data type taxonomy for InfoVis'. In *Proceedings of the IEEE Symposium on Visual Languages*. Boulder, Colorado:IEEE Computer Society Press, 336-343.
- Thomas, J.J. and Cook, K.K. eds. (2005) *Illuminating the Path: The research and development agenda for visual analytics*. Washington, D.C: IEEE Computer Society Press.
- van Wijk, J.J. (2005) The value of visualization. *IEEE Visualization*, 2005. VIS 05, 23-28 Oct. 2005: 79-85. doi: 10.1109/VISUAL.2005.1532781.
- Yakel, E. (2000) 'Thinking Inside and Outside the Boxes: Archival Reference Services at the Turn of the Century,' *Archivaria* 49: 140-160.

The Economic History Association of Israel

The extensive role of Jews in the economic and financial history of Europe has naturally led to a proliferation of research in Israel on economic and financial history in general. In many respects, Israel was the first Transition Economy (1977), and this has generated much research on the Israeli economy. As scholars are widely scattered across numerous departments in the social sciences and humanities, efforts to bring them all together started in the late 1990s.

In 2012 these efforts were resumed in full swing under the title of The Economic History Association of Israel. The Association's 133 members are mostly in academia and mostly based in Israel. About one third of the members are in economics departments and another one third are in history departments. Next come law schools, business schools, sociology departments, political science departments, and others.

A first annual meeting took place at Bar Ilan University in December 2012, with Professor Joel Mokyr (Northwestern University and Tel Aviv University) as keynote speaker. The sec-

ond annual meeting is scheduled for December 2013 at the Hebrew University in Jerusalem.

One sixth of the Association's members conduct research in the history of money, credit, finance, and banking. These members are scattered across various disciplines and until recently had little acquaintance with each other. Research topics in this group are general, Israeli, or Jewish. General topics include monetary and financial histories of Rome, China, France, Germany, Spain, the United Kingdom, the United States, and other countries in various periods, history of the international monetary system and its institutions, and history of monetary thought. Israeli topics include foreign exchange controls and other currency regulations during the era of high socialism (1948-1977), and the transition to independent central banking and competitive commercial banking. Jewish topics include the adjustment of ancient rabbinic law to the introduction of paper money in Europe and then the adjustment to the resulting high inflation, the role played by



The first annual meeting of the Economic History Association of Israel

the German Jewish banker Paul Warburg in the creation of the Federal Reserve System in the United States, and the charged relationship between Jews and money in Europe.

The Association has recently decided to establish forums for specialized topics that would meet a few times a year in smaller settings. The first such forum is the Money, Credit, and Banking Forum, which met for the first time in October 2013.

One of the main goals of the Association in general and the Forum in particular is to enable Israeli scholars to present their work, often in preliminary stages or in first draft, to the most easily accessible and relevant audience, before taking their work to a wider, international audience. For this reason, activities of the Associa-

tion and the Forum are conducted, by default, in Hebrew. At the same time, international conferences and other collaborations in English are deemed highly desirable, and will be encouraged by the Association to its utmost ability.

The Association's president is Professor Nathan Sussman of the Hebrew University in Jerusalem, who is also Director of the Research Department at the Bank of Israel, and member of the Editorial Advisory Board of the *Financial History Review*. The Association's secretary is Dr. Dror Goldberg of Bar Ilan University, who is also a financial historian.

For more details, the Association can be contacted at secretary@eha-israel.org
Its website is: <http://eha-israel.org>

Dror Goldberg
Bar Ilan University

The History of Central Banking in Slovakia

The historical development of central banking in Slovakia was the theme of a recent conference held to mark the 20th anniversary of the country's national bank.

The History of Central Banking in Slovakia, an international scientific conference organised by the National Bank of Slovakia (NBS) in co-operation with the Institute of History of the Slovak Academy of Sciences, was held between 13 and 14 November 2013 in the NBS Congress Hall. The conference was part of celebrations marking the 20th anniversary of the creation of the NBS. Until 1993, Slovakia formed part of different constitutional units and monetary development in its territory was shaped by many central monetary institutions. Therefore, experts in economic and banking history from neighbouring countries, namely the Czech Republic, Austria and Hungary, were invited to the conference. The conference was held in the Slovak, Czech and English languages. The

event was opened by Jozef Makúch, governor of the NBS, and Miroslav Londák, a member of the Presidium of the Slovak Academy of Sciences.

The talks were divided into four chronological and thematic sessions focused on the history of central banking in Slovakia in a broader Central European or European context. The first session, Central Banking in the Habsburg Empire, brought new perspectives on the position of Slovakia until 1918. Challenging discussion was held by our colleagues from the Austrian National Bank, Walter Antonowicz and Clemens Jobst, on the opening of central bank branch offices in Slovakia until the formation of Czechoslovakia in 1918. Noteworthy was the contribution of Ágnes Pogány from the Corvinus University of Budapest dealing with the complicated position of the Austro-Hungarian Bank during the First World War. The second session, the longest one, was held over two



days and witnessed probably the most heated discussion as it was dealing with a sensitive period – development of central banking in the Czech lands and Slovakia in 1918-1945. The first contribution was by Ľudovít Hallon from the Institute of History of the Slovak Academy of Sciences who spoke about the economic development of Slovakia amid constitutional and political changes. In this session, archivists of the NBS, František Chudják and Andrea Leková, contributed to the conference by speaking about the bank during the period 1939 to 1945 and its place in Slovak history. The speeches of Štefan Gaučík from the Bratislava City Museum and Ján Hlavinka from the Institute of History of the Slovak Academy of Sciences revealed many findings, not published so far, on banking in south Slovakia after the Vienna Arbitration in 1938, as well as on the destiny of the so-called Jewish gold during the Second World War and the NBS's role in its recovery. Antonie Doležalová from the University of Economics in Prague brought a new perspective on activities of Imrich Karvaš, the first governor of the NBS in the thirties. Jiří Novotný, senior research fellow in banking history in the Czech Republic, acquainted the conference participants with the issue of industrial lending by the National Bank of Czechoslovakia. The third session of talks addressed the history of the State Bank of Czechoslovakia. Prevailing trends of economic developments in Slovakia after 1945 were presented by Londák. The NBS was represented by Mária Kačkovičová, head of the archives section, who talked about reforms at the State Bank of Czechoslovakia between 1968 and 1969. A contribution by Jakub Kunert dealt with

complicated developments and changes in the administration of the State Bank of Czechoslovakia amid the economic transition until 1965. The ceremonial presentation of the NBS Governor's Award for an outstanding dissertation or diploma thesis by economics students was part of the fourth conference session. The latest information on the recent history of central banking in Slovakia was presented within this part of the conference. Developments in the Slovak banking sector after 1989 were evaluated by Eva Horvátová from the University of Economics in Bratislava.

The course of monetary policy up to the euro adoption was described by Martin Šuster, director of the NBS Research Department. Speeches were also delivered by people directly involved in the establishment of the NBS, namely Makúch, the bank's current governor, and Marián Tkáč, the first deputy governor, who was in charge of its management from 1993. Makúch was dealing in his contribution with the current tasks and competences of the NBS since the euro adoption and Tkáč explained the circumstances in which our central bank was established. At the end of the event, the book *The History of Central Banking in Slovakia*, published by the NBS this year on the occasion of its anniversary, was launched by Makúch.

The conference was accompanied by side events for the conference speakers – a tour of the NBS building, a presentation about the currency Test Laboratory's activities, or a visit to the Primate's Palace in Bratislava.

We believe that the conference provided a comprehensive presentation of the historical development of central banking in Slovakia.

František Chudják

Andrea Leková

National Bank of Slovakia

**Die Stadt und das Geld.
Frankfurter private Bankhäuser im Wandel der Geschichte.
11 November 2013. Frankfurt am Main, Germany.**

A symposium, organised by the Institut für Stadtgeschichte Frankfurt and the Hessischen Landeszentrale für politische Bildung, was held in the Frankfurt Carmelites monastery. The title of the symposium was 'Money and the City– Frankfurt Private Banks throughout History'. Organisers tried to bring the rise and development of four major Frankfurt private banks to light: Bankhaus Gebr. Bethmann, Bankhaus Georg Hauck & Sohn, Bankhaus B. Metzler seel. Sohn & co and Family Rothschild.

After the greeting by the Instituts für Stadtgeschichte director, Dr. Evelyn Brockhoff, the meeting was started by the director of Hessischen Landeszentrale für politische Bildung (the State central for political education), Dr. Bernd Heidenreich.

'These families found in the financial success of their banking houses and their thus accomplished position in the town a reason to engage in the well-being of the city. Through many generations, they were responsible for the commonwealth through many different functions. The donation and citizen sponsorship culture, on which Frankfurt still lives today, would be unimaginable without them. That is why the families Metzler, Bethmann and Hauck can still be thought of today as the individual and collective role models for an urban community that doesn't suffer from unscrupulous egoism and individual interest, but stands on citizenship and community spirit. By dealing with their history today, we accomplish political education in the word's best meaning', said Heidenreich.

The thematic entrance was supplied by Prof. Werner Plumpe, chair of Economic and Social History Department at the Goethe-University in Frankfurt, with a speech about Frankfurt's development into a Banking metropolis. After him, papers were presented by: Dr. Verena von Wiczlinski, teacher at the History seminar on the Johannes-Gutenberg-University Mainz; Marc Balbaschewski, Head of the banking house Hauck & Aufhäuser Archives; Stefan Ohmeis, firm historian of the banking house Metzler and Fritz Backhaus, deputy director of the Jewish museum in Frankfurt. The moderator was Gerald Braumberger, head of the Financial Market Department of the Frankfurter Allgemeine Zeitung.



Le figlie della Compagnia. Casa del soccorso, Opera del deposito, Educatorio Duchessa Isabella fra età moderna e contemporanea

Anna Cantaluppi, Walter E. Crivellin and Bruno Signorelli (Eds.)

2 vols., 2011; I, pp. 384; II, pp. 64 (pictures and images)

'Daughters of the Compagnia' is a hardly translatable wordplay referring to the female guests of the House of Assistance before its evolution into the school Duchessa Isabella. The Compagnia is the Compagnia di San Paolo, a private fellowship, secular but originally with a religious inspiration, that, since 1563, has operated in the urban context of Turin helping the poor also through ad hoc charitable institutions. Founded by seven citizens in the cultural mood of the Counter Reformation age, the Compagnia had no minor role in the urban society and in creating a network of merchants, noblemen and the ducal Court, all of them active in its charitable endeavours and sharing a common religious sensitivity. The Historical Archives of the Compagnia still preserve a large and uninterrupted documentary collection, from the Sixteenth

Century origins until the present day. In 1992 the Compagnia, that in the course of the centuries had turned into a public bank, was transformed into a private philanthropic foundation. After the three volumes edited by Bruno Signorelli and Walter Crivellin about the history of the Compagnia (*Per una storia della Compagnia di San Paolo, Compagnia di San Paolo di Torino, «Quaderni dell'Archivio storico», 2004-2007*) and before the publication of a new two-volume work *La Compagnia di San Paolo, 1563-2013*, edited by Walter Barberis with Anna Cantaluppi (Einaudi, Turin, June 2013 forthcoming), this book aims to dig around in the matter of women's education during the early modern and the contemporary age. The editors, Anna Cantaluppi, head of Historical Archives of Compagnia di San Paolo, Walter Crivellin and Bruno Signo-



First, second and third class of the elementary school

relli, led a group of scholars in tapping into the rich and large archives of the Compagnia in Turin in order to collect fresh evidence on a subject matter still deserving scholarly attention. In the first essays Anna Cantaluppi analyses the complex history of archives of the Houses of Assistance and the *Educatario* and describes the main series, such as minutes and resolutions of the meetings and registers of pupils, the sources used to make the biographies of more than 3700 girls and women, articles and regulations, account books, bequests, personnel files of schoolmistresses and teachers, class registers with marks and syllabuses. Then Sandra Cavallo - well known among English readers for her book *Charity and Power in Early Modern Italy. Benefactors and their motives in Turin, 1541-1789* (Cambridge 1995) - deals with the social context of girls and women recovered in the *Casa del Soccorso* or in the *Casa del Deposito* (both Houses of Assistance). For most of them were not poor but instead had strong links with the urban élite. This issue is well demonstrated by Marcella Maritano. In her long

chapter about *Soccorso*, *Deposito* and *Forzate*, from the beginning of the Seventeenth century until the French Revolution, she emphasises the dense social network created in the city by the *San Paolo* fellowship; a network through which the brothers and their relatives could direct their philanthropic support towards middle class young girls and women, impoverished or not, mainly by way of their wills and legacies. With the exclusion of the *Forzate* (that is "fallen women", sort of semivoluntary inmates) the guests spent their lives freely inside these institutions, having a safe place to stay or waiting for a sure dowry (often provided by the *Compagnia*) and an ensuing good marriage. Indeed, Molière's title *the School for Wives* is also a very good title for Paolo Bianchini's essay, i.e. female education between the nineteenth and twentieth centuries. A heated social discussion on the very function of the Houses of Assistance, united in 1853, did not bring to its demission: on the contrary, they were revamped and renamed '*Educatario Duchessa Isabella*' in 1883, in the honor of Isabella of Bavaria, wife of



Painting classroom

Tommaso of Savoy, duke of Genoa. The *Educatario* promoted the education of girls belonging to the middle class, teaching them morality, manners, as well as typical feminine abilities and skills. Many students from the *Educatario* became teachers in primary schools; a job that suited a well mannered and sufficiently educated woman without encouraging professional emancipation too much.

Not only the education changed during the centuries. The legal status of this kind of public/private institution underwent many political and normative reforms from the XIX Restoration until the Second World War. In the second half of nineteenth century the *Educatario* was reorganised under the slogan of 'a new answer to the feminine education' (p. 209) and included primary and high school courses. The issue has been studied by Fabrizio Gentile and Monica Stara, who, as Maritano did for previous centuries, studied the social framework of the girls, their age when entering and when leaving the Institution, the period each of them spent there, the daily life in the College. Some places were tuition-free thanks to benefactors' bequests, but many others were subject to tuition, so that daughters of physicians, lawyers, soldiers, professionals and noblemen were the principal users of the *Educatario*.

The *Educatario's* building was destroyed by an air raid in 1942. During its history, it had several seats, as Bruno Signorelli shows in the first volume. His essay helps the reader to understand how and where the *Casa del Soccorso*, the *Opera del Deposito*, la *Casa delle Forzate* and finally the *Educatario* were located in the city of Turin. Benefactors and benefactresses used to give the *Compagnia di San Paolo* buildings as well as money in order for them to help the destitute; for instance the rich lady Margherita Falcombello left her wealth to the orphan girls in 1678. Over time, the *Compagnia's* building seats became larger and spread all over the city, in particular during the eighteenth century thanks to renowned architects such as Antonio

Bertola and Benedetto Alfieri. In 1879 Giovanni Giolitti found the House of Assistance too small and the *Compagnia* commissioned to engineer Giuseppe Davicini to build a new complex at the so-called *Barriera di Francia*. The building is today undergoing thorough restoration in order to host several departments of the present day *Compagnia* and already hosts the *Ufficio Pio* (another charitable branch founded in 1595). As the contemporary use of an historical location demonstrates, continuity is a 'stylistic cipher' of the Company: if in the early modern age, it promoted alphabetization and education, today's *Fondazione per la scuola* (the Foundation for School), the current heir and embodiment of the original *Educatario*, appears a new important instrument to enhance education and employment starting from Turin. This is the consideration and the hope expressed by Lorenzo Caselli, first chair of the Foundation and last contributor of the book.

The second volume, edited by Anna Cantalupi, Ilaria Bibollet and Erika Salassa, of the work deserves a special mention as it is a beautiful 'Story by images': documents, places, portraits and pictures offer a living depiction of the identity and history of the *Educatario*. The Archives conserve some precious collections of pictures by important photographers (like Bernardo Pasta, or Jean David from Paris) and to see the splendid portrait of the duchess Isabella or the young pupils having lunch or working out in the school's gardens is a very good way to ruminate over the findings presented in the first volume and to figure out what female education (and its self-representation) looked like in Italy before the Second World War.

Blythe Alice Raviola
Università degli Studi di Torino

La Compagnia di San Paolo : 1563-2013
Barberis, Walter ; Anna Cantaluppi (eds)
 Torino: Einaudi, 2013.
 2 vols. 25cm., hardcover, 1419pp
 ISBN: 9788806215859

The two volumes, including 44 essays and almost two hundred photographs, are the result of thorough research; reinterpreting various aspects of the Compagnia's history, from its religious origins to its developing social activities, from pawnshop to lending institution, from art collections to historical buildings, all in the context of the city and an ever wider territorial reference range.



The publications by the Compagnia di San Paolo can be distinguished in three main series:

- **Quaderni dell'Archivio Storico** is the series created in 1997 with the purpose of promoting research and spreading the studies of major interest in the field of archive-keeping. To this day, seven volumes have been published about different themes: the juridical analysis of the property contracts, the persecution of the Jews in Torino, the medical districts for the poor, the modern and commented edition of the history of the Compagnia di San Paolo by Tesaurò, a collection of sources and essays on religious subjects, the artistic heritage, the premises, the social composition, the legacies, the notary public's deeds, the crisis in the Risorgimento of the ancient Compagnia.
- **Quaderni della Compagnia** concerns the publication of particularly significant work documents connected with the most relevant projects promoted by the Compagnia di San Paolo. Presently it includes five volumes published in the context of programs and initiatives that involve these sectors: Public Health, Education, Social Policies, and Cultural Activities.
- **Studi e Ricerche** is the series intended for international themes, it includes reports and studies about the cooperation between countries, about cultural cooperation in Europe, and about European foundations and evaluation methods.

Saving the City: The Great Financial Crisis of 1914

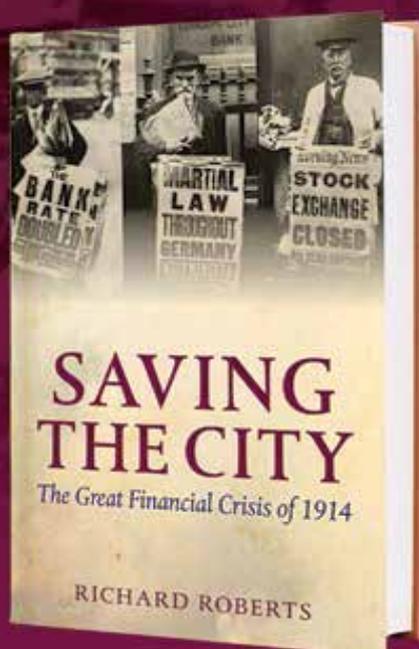
Richard Roberts

In London, the world's foremost financial centre, the week before the outbreak of the First World War saw the breakdown of the markets, culminating with the closure for the first time ever of the London Stock Exchange on Friday 31 July. Outside the Bank of England a long anxious queue waited to change bank notes for gold sovereigns. Bankers believed that a run on the banks was underway, threatening the collapse of the banking system--all with the nation on the eve of war.

This book tells the extraordinary, and largely unknown, story of this acute financial crisis that surged over London and around the globe. Drawing on diaries, letters, and memoirs of participants and a wide range of press coverage, as well as government and bank archives, it presents a lively and colourful account of a remarkable episode in financial and social his-

tory, outlining the drama of the collapse and the measures taken to contain it. This crucial and compelling 'missing piece' in the world's financial development was the first true global financial crisis, and proved a landmark in the management of financial crises.

Richard Roberts is Professor of Contemporary History at the Institute of Contemporary British History at King's College London. He has held fellowships at Downing College, Cambridge, Princeton University, and the Bank of England. He specialises in financial history and is author of many publications in this field including histories of City investment bank Schroders (1992) and consortium bank Orion (2001). His contemporary studies *Wall Street* (2002) and *The City* (2008) are published by The Economist.



£20.00 | Hardback | November

'Lucid and masterly... The story of a financial crisis, when told with the knowledge and skill of a Richard Roberts, is a mix of detective story and compelling political and social history.'

Lord King of Lothbury, former Governor of the Bank of England

The week before the outbreak of the First World War saw the collapse of the markets, culminating with the closure for the first time ever of the London Stock Exchange on 31 July. This book tells the extraordinary, and largely unknown, story of this acute financial crisis. Drawing on diaries, letters, and memoirs of participants, and a wide range of press coverage, as well as government and bank archives, it presents a lively and colourful account of a remarkable episode in financial and social history, outlining the drama of the collapse and the measures taken to contain it.

OXFORD
UNIVERSITY PRESS

FINANCIAL HISTORY REVIEW, VOLUME 20 - ISSUE 03

Understanding rating addiction: US courts and the origins of rating agencies' regulatory license (1900–1940)
Marc Flandreau and Joanna Kinga Sławatyniec

[Financial History Review, Volume 20, Issue 03, December 2013, pp 237-257](#)

doi: 10.1017/S096856501300022X, Published online by Cambridge University Press 26 Nov 2013

Learning by doing: the failure of the 1697 Malt Lottery Loan
Georges Gallais-Hamonno and Christian Rietsch

[Financial History Review, Volume 20, Issue 03, December 2013, pp 259-277](#)

doi: 10.1017/S0968565013000127, Published online by Cambridge University Press 08 Aug 2013

Price manipulation at the NYSE and the 1899 battle for Brooklyn Rapid Transit shares
Timothy A. Kruse and Steven K. Todd

[Financial History Review, Volume 20, Issue 03, December 2013, pp 279-303](#)

doi: 10.1017/S0968565013000218, Published online by Cambridge University Press 05 Nov 2013

Imperfect but true competition: innovation and profitability in Portuguese banking during the golden age (1950–1973)
Luciano Amaral

[Financial History Review, Volume 20, Issue 03, December 2013, pp 305-333](#)

doi: 10.1017/S0968565013000206, Published online by Cambridge University Press 01 Nov 2013

The seasonal demand for multiple monies in Manchuria: re-examining Zhang Zuolin's government's economic policy during the 1920s
Miriam Kaminishi

[Financial History Review, Volume 20, Issue 03, December 2013, pp 335-359](#)

doi: 10.1017/S0968565013000140, Published online by Cambridge University Press 09 Aug 2013

Alessandro Stanziani, *Rules of Exchange: French Capitalism in Comparative Perspective, Eighteenth to Early Twentieth Centuries* (Cambridge: Cambridge University Press, 2012, ix + 313 pp., £52.25, ISBN 978-1-107-00386-6)
Patrice Baubeau

[Financial History Review, Volume 20, Issue 03, December 2013, pp 360-362](#)

doi: 10.1017/S0968565013000176, Published online by Cambridge University Press 24 Jun 2013

FHR volume 20 issue 3 Cover and Front matter

[Financial History Review, Volume 20, Issue 03, December 2013, pp f1-f3](#)

doi: 10.1017/S0968565013000243, Published online by Cambridge University Press 26 Nov 2013

FHR volume 20 issue 3 Cover and Back matter

[Financial History Review, Volume 20, Issue 03, December 2013, pp b1-b2](#)

doi: 10.1017/S0968565013000255, Published online by Cambridge University Press 26 Nov 2013

Archival Legislation for Finance (ALFF) in Europe

Understanding our times increasingly depends on the preservation of our financial records. Authentic and reliable memory systems are needed to understand current crises and to evaluate risks. Reliable memory systems can only be created through knowing and understanding how corporations manage their archives in practice and what the organisational system for doing so is. *EABH* believes that safeguarding the records of our financial institutions (FIs) will improve the protection of global financial stability. For that reason a project on archival legislation for finance (ALFF) began in 2012 with the objective to collect information about the best practices of financial institutions in building and improving their archives. For this reason we have developed a survey to collect data about the current framework of European FIs' archival systems and organised workshops in cooperation with several financial institutions.

The 3rd Workshop of the series took place on 25 October 2013 in cooperation with the Central Bank of Iceland.

Programme

Welcome address

Mar Gudmundsson (Governor of the Central Bank of Iceland)

Introduction

Gérassimos Notaras (National Bank of Greece)

Session one

The Archives of Glitnir Bank – rules and legislation

Steinunn Guðbjartsdóttir (Glitnir Bank)

The legal framework of record keeping and archives in Iceland with focus on financial institutions

Sigríður Logadóttir (Central Bank of Iceland)

The historical archives of the EU and financial institutions' historical archives

Dieter Schlenker (Historical Archives of the European Union)

Legal framework for records management and archives. Public authorities and private financial institutions in Sweden

Mira Barkå (Riksbank)

Session two

Archival and record management legislation in Turkey

Berna Narşap (Türkiye İş Bankası A.Ş.)

The UK public records system and HM government financial institutions

Robert Johnson (The National Archives UK)

Records management and archiving in private financial institutions

Melanie Aspey (The Rothschild archive)

Concluding remarks

Ines Van Dijk (De Nederlandsche Bank)

Click here to access all papers and findings online.

The Challenges of International Banking Regulation and Supervision after 1945

This conference took place in cooperation with Glasgow University and the Frankfurt School of Finance and Management on 16 and 17 January 2014 in Frankfurt am Main, Germany.*

Financial regulation and supervision has gained prominence in the public debate over the past few years. The aim of this conference was to contextualise discussions about financial regulation and supervision since 1945, in particular by providing a historical perspective to current debates. Legal, economic, political science/political economy and historical aspects were discussed in order to enrich and widen the debate about international regulation and supervision. The questions that were addressed included the obstacles to an effective international banking regulation and/or supervision; have lessons been learnt from previous banking crisis? Speakers and participants were looking at parallels between our current predicament and the international banking crisis of the 1970s, 1980s and 1990s? The governance of banking regulation certainly and supervision evolved since 1945, but has it really created a 'global level playing field' or has the international governance of banking regulation become too complex for its own good?

Please click [here](#) to access all papers and presentations

The conference ended with the first *eabh* lunch hour 2014. **Banking Union for Europe: Burden or Benefit?** was the topic of an open discussion that attracted more than 100 financial experts of the city of Frankfurt. Together with representatives of the ECB, private banks and academics, participants discussed challenges and current developments in the sector. The talk was followed by stimulating discussions over lunch. *EABH* hopes to continue the series soon.

*This conference was jointly organised by *EABH*, the ESRC-funded project 'The Development of International Financial Regulation and Supervision (1961-1982)', University of Glasgow and the Frankfurt School of Finance & Management.



eabh lunch hour: **Banking Union for Europe: Burden or Benefit?**

THE CHALLENGES OF INTERNATIONAL BANKING REGULATION AND SUPERVISION AFTER 1945

16-17 January 2014

Frankfurt School of Finance & Management, Sonnemannstrasse 9-11, 60314 Frankfurt am Main

Financial regulation and supervision has gained prominence in the public debate over the past few years. The aim of this conference is to contextualise discussions about financial regulation and supervision since 1945, in particular by providing a historical perspective to current debates. We want to bring together interdisciplinary approaches in order to enrich and widen the debate about international supervision.

Programme

Thursday, 16 January 2014

- 13:30 **Welcome**
Horst Löchel, *Frankfurt School of Finance & Management*
Manfred Pohl, *EABH*
- 14:00 **Keynotes**
Catherine Schenk, *University of Glasgow*
- 15:00 Coffee Break
- Case Studies I**
Chair: Emmanuel Murlon-Druol, *University of Glasgow*
- 15:30 The Banking Sector in Uruguay between 1938 and 1965: The Role of Bank Regulation in State-led Industrialisation and Monetary Policy
Gastón Díaz and Cecilia Moreira, *Universidad de la República*
- 16:00 Two Banking Crises and Two Regulatory Responses Compared: Spain, 1976-1984 and 2007-2013
María A. Pons, *University of Valencia*
- 16:30 The Building of a Banking Supervision in the French-African Monetary Unions at the Turn of the African Independence
Vincent Duchaussoy, *Banque de France*
- 17:00 Coffee Break
- Case Studies II**
Chair: Catherine Schenk, *University of Glasgow*
- 17:30 Financial Market Regulation in Germany under the Special Focus of Capital Requirements of Financial Institutions
Daniel Detzer, *Berlin School of Economics and Law*
- 18:00 Leverage in Swedish Banks 1925-2012
Elias Bengtsson, *Sveriges Riksbank*

Friday, 17 January 2014

- International and Global Dimension**
Chair: Piet Clement, *Bank for International Settlements*
- 09:00 The Basel Committee on Banking Supervision: A Global Network?
Alexis Drach, *European University Institute*
- 09:30 The Failed European Banking Union: The Development of Banking Regulation and Supervision in Western Europe, 1960s-1970s
Emmanuel Murlon-Druol, *University of Glasgow*
- 10:00 Gentlemen and Players: Self-regulation in International Banking in the 1970s
Catherine Schenk, *University of Glasgow*
- 11:00 End of Conference

supervision.eabh.info

Please register: info@eabh.info



BANKING UNION FOR EUROPE BURDEN OR BENEFIT?

eabh lunch hour

17 January 2014, 11:30 am

*EABH and the Frankfurt School of Finance & Management
Sonnemannstrasse 9-11, 60314 Frankfurt am Main, Germany*

The recent banking crisis highlighted the need for swift and decisive action by EU-level funding arrangements. As the European Central Bank (ECB) takes over its role as Single Supervisory Authority in the Euro-zone, there is an opportunity to take stock of current developments in international financial regulation and supervision, and provide insights into possible future directions. This round table will discuss these developments in their wider context, their impact on the real economy, and the pros and cons for the different stakeholders. The discussion will offer an interdisciplinary perspective, across law, history and economics, and involve both, academics and policy-makers. What is the role of the Basel Committee on Banking Supervision in current debates? What are the main challenges that the ECB will face as Single Supervisory Authority? What are the prospects and limits of creating a European banking union? Which lessons can be drawn from previous efforts to harmonise European banking?

Chair: Catherine Schenk, *University of Glasgow*

Discussants:

- Kern Alexander, *University of Zurich*
- Emiliios Avgouleas, *University of Edinburgh*
- Karl Cordewener, *Basel Committee on Banking Supervision*
- Dirk Schumacher, *Goldman Sachs*
- Adalbert Winkler, *Frankfurt School of Finance & Management*
- Chiara Zilioli, *European Central Bank*

Participation for the ***eabh* lunch hour** is free.

supervision.eabh.info

Please register: info@eabh.info



2014 EABH New Scholars Workshop

EABH and Queen's University Centre for Economic History (QUCEH) invite advanced PhD students and recent postdoctoral researchers in financial history for a New Scholars Workshop in Belfast on 16 April 2014.

This one-day intensive workshop is specifically intended for new scholars in financial history, broadly defined, who wish to practice and improve their research through presentation and discussion with more experienced scholars. Participants who have a full research paper and are intending in the near future to go on the academic job market, or submit their work to a top field journal in business, economic or financial history, were particularly encouraged to apply. Research in any theme and methodology in banking and financial history is welcome. Comparative approaches are encouraged and co-authored papers are accepted. The workshop's keynote speaker and discussant will be Professor Joost Jonker, NEHA professor of business history at the Universiteit van Amsterdam. Joost's research embraces business and financial history from the 16th century to the present. He has published in the *Journal of Economic History* and *Financial History Review*, 16 as well as in monographs and edited volumes. His recent work, conducted jointly with Dr Oscar Gelderblom of Universiteit Utrecht, explores the evolution of financial markets in pre-industrial Europe.

Participants will also benefit from the close discussion of their work by faculty at QUCEH, a research centre based at Queen's University Management School and located in a listed redbrick mansion in eleven acres of parkland in leafy south Belfast. Discussants from QUCEH will include: Dr Gareth Campbell, Dr Chris Colvin, Dr Christopher Coyle and Professor John Turner. All have publications in business, economic and financial history journals on subjects ranging from free banking to cooperative banking, and from financial bubbles to financial stability.

The full programme and all papers will be available after the workshop.



Risk Management

2014 Annual Conference

13 June 2014

Swiss Re, Rueschlikon, Switzerland

jointly organised by

EABH (European Association for Banking and Financial History e.V.)

and *Swiss Re*

The term 'RISK' has experienced inflationary use over the last years, resulting in a multitude of linguistic combinations. While everyday notions of risk are closely associated with danger and uncertainty, financial services, banking and insurance associate the term mainly with deviations from the expected. Such attempts aim at separating economic risk from uncertainty and at making risks insurable. They imply that risk can be quantified or measured and thus managed. Banking and insurance have both developed individual ways of dealing with risk, which, to some degree, show signs of a parallel evolution. Besides actuarial methods, both insurance and modern finance have applied portfolio selection or diversification as a guiding principle. Both industries were exposed to major challenges after the demise of the Bretton Woods System and had to develop instruments to hedge against inflation and fluctuating interest rates. Capital markets developed options and futures and, later, swaps. Reinsurance futures were suggested for the insurance industry. These products were slow to develop. In the wake of the 1987 equity market crash they became more popular and the capital markets (and later insurance) started applying Sharpe's CAPM and the Black-Scholes model more widely to tackle increasingly mathematical problems. JP Morgan finally developed the 'Value-at-Risk' (VaR) concept to take into account what later was called 'Black Swans', a concept which had been known and applied in insurance for much longer. The Basle Committee then adopted the VaR approach to set minimum capital requirements for banks. Enterprise-wide risk management gradually developed in conjunction with regulatory requirements to include operational and other risks. However, risk management in financial services is a relatively new concept. The 2014 *EABH* conference aims to investigate the ways in which today's corporate risk management approaches came about.



Risk Management

Draft Programme		Friday, 13 June 2014	
08.00 – 08.15	Introduction	Walter Kielholz	<i>Swiss Re</i>
08.15 – 08.45	From the End of Bretton Woods to the Global Financial Crisis: 40 Years of Turbulence	Hugo Bänziger	<i>Eurex Group; EABH</i>
08.45 – 09.00	Actuaries – the first Risk Managers	Hans Bühlmann	<i>Eidgenössische Technische Hochschule</i>
09.15 – 09.45	Early Days of Credit Risk Management: When Credit was Paper-based	John Mooney Doug Neilson	
09:45 – 10.15	Market Risk Management: Early Days	Andreas Gottschling	<i>Erste Oesterreich</i>
10.15 – 10.30	Coffee Break		
10.30 – 11.15	From the Cook Committee to Basel 3: The Introduction of Risk into Regulation	David Cole (mod.) Daniel Zuberbühler Clifford Smout Christopher Kobrak	<i>Swiss Re</i> <i>KPMG</i> <i>Deloitte</i> <i>ESCP Europe</i>
11.15 – 12.00	Enterprise-wide Risk Management	Thorsten Wegner	<i>Mc Kinsey</i>
12.00 – 12.45	How Everything Started	Hugo Bänziger (mod.) Lothar Weber Christian Casal Rolf Bachmann	<i>Eurex Group, EABH</i> <i>Bluewin</i> <i>Mc Kinsey</i> <i>Lazard</i>
13.00 – 14.00	Lunch		



14.00 – 16.00		
Presentation of Research Papers	Harold James (mod.)	<i>Princeton University</i>
Derivatives as a Risk Management Products: A History of Concepts and Markets	Alexander Engel	<i>Goettingen University</i>
Insurance, Reinsurance, and Technologies of Financial Anti-Fragility: A Note on the Origins of Junk Bonds and CDOs	Alexandros Andreas Kyrtis	<i>University of Athens</i>
In the Name of God: Managing Risk in Islamic Finance	Valentino Cattelan	<i>University of Oxford</i>
Dealing with Underwriting Risk in Connection with Sovereign Loan Issues in London, 1870-1914	Anders Løhde Mikkelsen	<i>Kings College London</i>
Actuarial Backwardness in Spanish Life Insurance - Life Tables and Profits (1890-1937)	Jéronia Pons Pons & Pablo Guitérrez González	<i>University of Seville</i>
Out of the Shadows: Commercial Bank Mortgage Securitization and the Great Depression in the Chicago Area	Natasha Postel Vinay	<i>London School of Economics</i>
Conservative Risk Management: The Asset Management of Zurich Insurance Company in the Interwar Period	Luca Froehlicher	<i>University of Zürich</i>
Creating a Risk Management Department: Banque Paribas' Experience	Jean-François Daudrix	<i>BNP Paribas</i>
16.00 End of Conference/ Toast		



Banks at War I:
Financial Institutions confronted by the Great War.
2014 Archival Workshop
12 June 2014
Swiss Re, Rueschlikon, Switzerland

jointly organised by
EABH (European Association for Banking and Financial History e.V.)
and *Swiss Re*

This project aims to reconstitute the reaction and adaption of banks and insurance companies in the first days, weeks and months of what became the Great War. The objective is to deliver a comprehensive study, rich with case studies and illustrations from different international archival centers. Banks and insurance companies were altogether competing against each other and complementing their activities on a global level in Germany and France. All of a sudden, war imposed drastic borders between two fighting camps and created two economic and finance areas. Governments had to finance the immediate needs of military entities. Moreover, the creation of an 'economics of war' fostered a new structure of productive processes, where banks and insurance companies assumed their functions and tasks.

How did banks and insurance companies fare throughout the conflict? Records of loans to companies offer a good way of understanding the economic war effort and the policy of investment. Archival sources could foster analysis of the destabilizing aspects of war of the new role of the state imposed on business and daily life. Archival materials offer excellent opportunities for (comparative) analysis of the changing strategies and business models as a reaction to crises, which also created barriers to free markets and exchanges.



Banks at War I:
Financial Institutions confronted by the Great War.
 12 June 2014
 Draft Programme

12.45 - 13.00	Registration
13.00 - 13.15	Welcome Address/Introduction
	Salvatore Novaretti, <i>Swiss Re</i>
	<i>EABH</i> representative
13.15 - 14.45	Session I
	Moderator: Martin L. Müller, <i>Deutsche Bank</i>
13.15 - 13.35	,Zurich Would Have Been Bankrupt a Long Time Ago'. <i>Zurich Insurance Company</i> and the Great War
	Thomas Inglin, <i>Zurich Insurance Company</i>
13.35 - 13.55	title to be specified
	Marzio Lipari, <i>Generali Group</i>
13.55 - 14.15	Alexander Freiherr von Spitzmüller and his Diary
	Thomas Just, <i>Austrian State Archives</i>
14.15 - 14.35	,The War before the War' – The <i>National Bank of Romania</i> and the Economic War during Romania's Neutrality years (1914 – 1916)
	Brindusa Costache & Nadia Manea, <i>National Bank of Romania</i>
14.35 - 14.45	Discussion
14.45 - 15.00	Break
15.00 - 16.20	Session II
	Moderator: Francesca Pino, <i>Intesa Sanpaolo</i>
15.00 - 15.20	Things I can do for my Country. The archives Reveal Patriotic Concerns of the Forerunners of <i>BNP Paribas</i>
	Christiane de Fleurieu, <i>BNP Paribas</i> & Jean-Louis Moreau, <i>BNP Paribas Fortis</i>
15.20 - 15.40	<i>Deutsche Bank</i> and its Employees during WWI
	Martin L. Müller & Reinhard Frost, <i>Deutsche Bank</i>
15.40 - 16.00	On Both Sides of the Eastern Front – <i>Bank Handlowy w Warszawie</i> during WWI
	Lukasz Wilinski, <i>Leopold Kronenberg Foundation at Citi Handlowy</i>
16.00 - 16.20	Being German in Wartime Britain: How and why did <i>J. Henry Schröder & Co.</i> Survive?
	Caroline Shaw, <i>Schroders</i>
16.20 - 16.30	Discussion
16.30 - 16.45	Concluding Remarks
	Richard Roberts, <i>King's College London</i>

NEW eabh Papers**eabh workin papers series. We look forward to reading your work!**

The *EABH* Working Papers Series (eabh Papers), launched in 2014, gives scholars in banking, financial, business, and economic history and related fields the opportunity to distribute their research-in-progress. Making these findings available to a wider audience, even at an early stage, supports authors' search for qualified feedback, makes their work visible to international audiences, and increases their research's impact. These are important steps towards publication in a top-ranking scientific journal.

Why should you consider eabh Papers?

- Make your work available early to a wide audience of interested researchers.
- Get feedback on your work-in-progress from experts in your field.
- Gain visibility online by being listed in relevant scholarly databases (EconStor, RePEc, Leibniz Open Access Repository, BASE, EconLit, googleScholar)
- It's easy! All you need is original work that is well developed, but not just ready yet for submission to a professional journal.

Just follow our submission guidelines and Opens window for sending emailsend your paper to *EABH*. Our team will make a decision on whether the paper warrants inclusion by drawing on advice and comments from professionals in your field.

EABH offers

- 'Light-touch editing': ensuring that basic scholarly standards are met. Papers may be sent to outside experts for advice.
- Language editing (papers must be submitted in English): ensuring that a basic English language level is met.
- Copyediting in line with the RePEc standards.
- Promotion through our international network and listing of papers in relevant on-line databases.

Submissions should go to Ms Carmen Hofmann

Submitting authors should include

- A biographical CV (50 words max.)
- A copy of the manuscript saved as word- (or word-compatible) document, including footnotes, appendices, and bibliographical references. The cover page of the document should include the paper's title, author(s), contact details (email, address, phone, affiliation) and a short abstract (of approx. 200 words).
- At least three keywords and three JEL codes, including at least one in category N (Economic History); please refer to the American Economic Association website for more information.

Series Co-Editors

- Dr. Chris Colvin (Queen's University Belfast)
- Dr. Nathan Marcus (The Hebrew University of Jerusalem)

Please click [here](#) for more information about the *eabh* Papers.

Please click [here](#) to find all *eabh* papers.

Teleprinter Code Cards

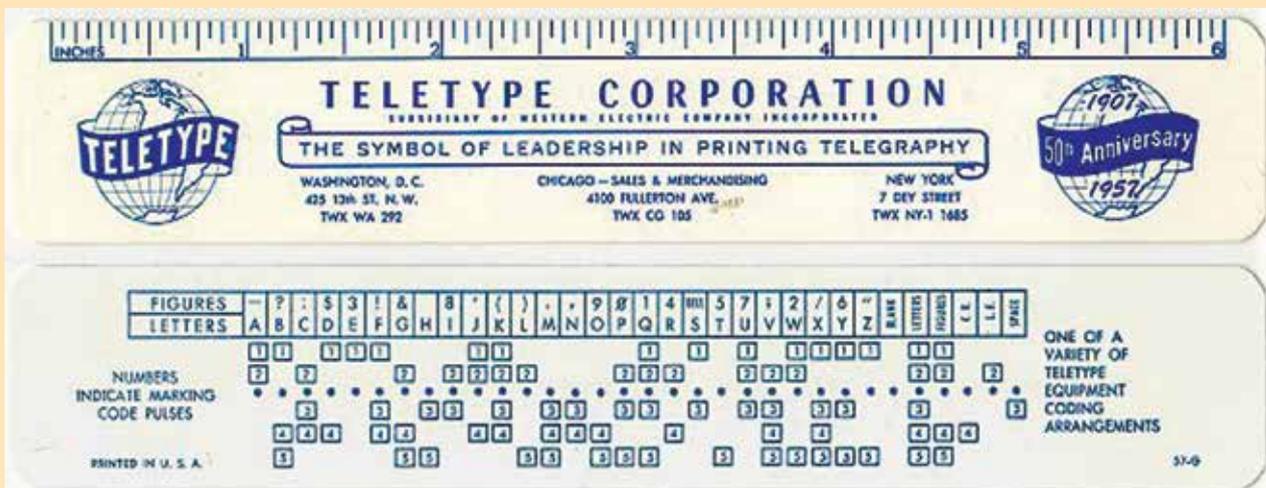
Once upon a time there was a teleprinter. Most teleprinters used the 5-bit Baudot code (also known as ITA2). This limited the character set to 32 codes (25 = 32). One had to use a "FIGS" shift key to type numbers and special characters.

Teleprinter repairmen and other professionals have almost always carried references of the various data interchange codes, print element character position charts, and other information of value in their work. They were often promotional items, trade-show giveaways, and 'Badges Of Honor' from tech schools and training courses.

Here we present a few samples
 More at www.rtty.com



Model 28 Teletype Code Card



Teletype Corporation 50th Anniversary Code Card