

Exploring the 1914 – 1917 Discount Ledger of the Federal Reserve Bank of Dallas

Christoffer Koch[†] Patrick Van Horn[‡]

[†]Federal Reserve Bank of Dallas

[‡]Scripps College

– Workshop on Monetary and Financial History –

Federal Reserve Bank of Cleveland

May 14-15, 2018

The views expressed in this presentation are those of the authors and are not necessarily reflective of views at the Federal Reserve Bank of Dallas or the Federal Reserve System.
Any errors or omissions are the sole responsibility of the authors.



The Fed as a Startup – Establishment of a Central Bank



The Federal Reserve Bank of Dallas opened for business in temporary quarters on the ground floor of this building on November 16, 1914. The building was located on Main Street, where the Davis Building now stands.



The first permanent home of the Federal Reserve Bank of Dallas, located at Commerce and Martin Streets. The bank moved into these quarters on October 30, 1915.



Lots (!) of literature on the Fed and its history - we could even write a history of the history ...

- Larger works: Friedman & Schwartz (1963, only 3 pages), Hetzel (2008), Meltzer (2003), Wicker (1996), Wheelock (1991), White (1983), ...
- Miron (1986, AER), Clark (1986, JPE), Carlson and Wheelock (2018, JMCB) \Rightarrow will offer critique
- Determinants of FRB locations: Jaremski & Wheelock (2017)

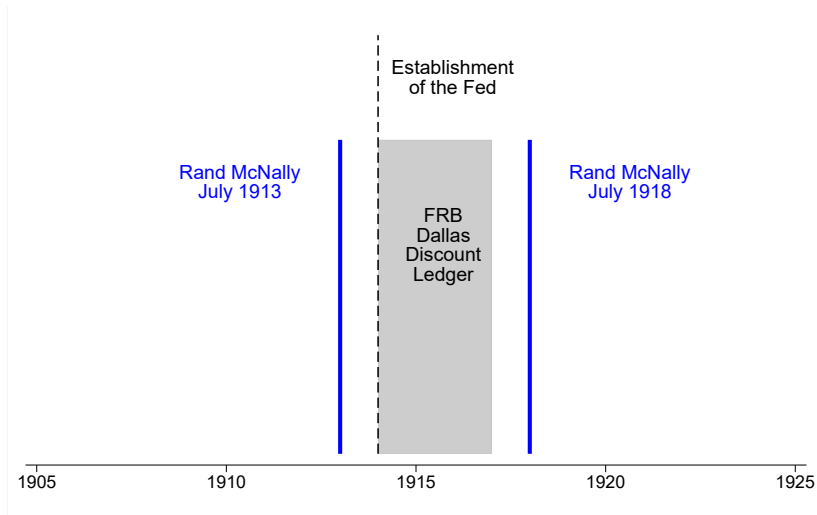
What was the mechanism bringing some of the previous findings about? What commercial banks partook initially? To what effect?

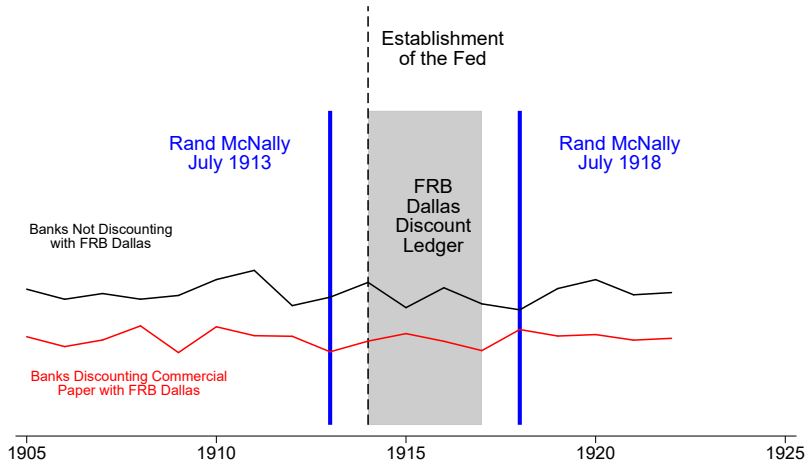
How did the founding of the Fed affect ...

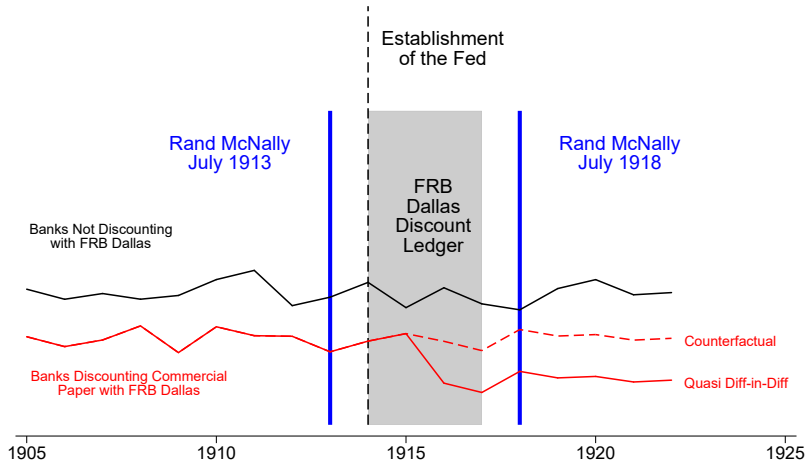
- The network structure of the commercial banking system?
- Bank balance sheets?
- Bank liquidity holdings and if so how?



Method







Commercial banks utilizing the Fed's discount window ...

- ... are spatially close: railroads and gravity matter

- ... tend to be larger

Discounting with the Federal Reserve Bank of Dallas ...

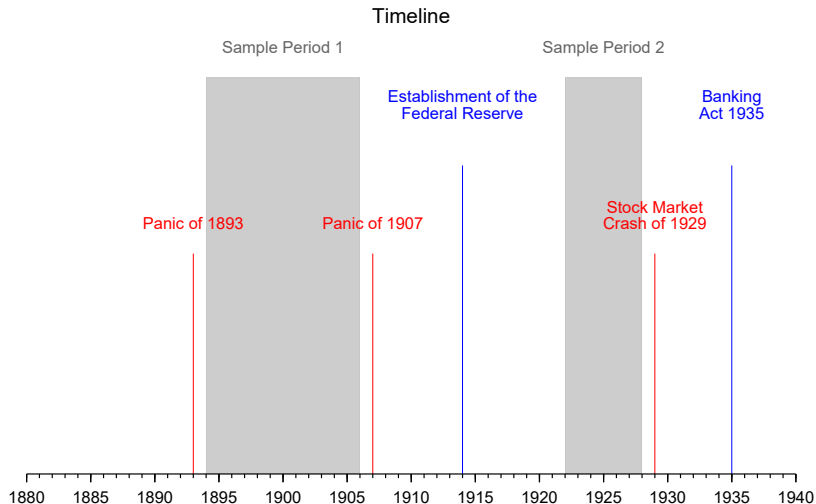
- ... increase loans in bank assets by 2.5 percentage points

- ... made the local network within Texas “more dense”

- ... served ex-post rather than ex-ante liquidity needs



Differing Approaches

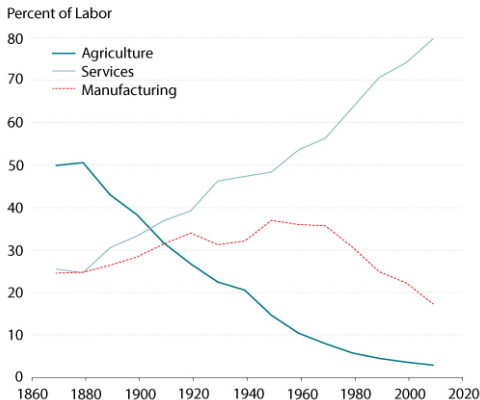


Source: Author's visualization based on Carlson and Wheelock (2016, AER PP; 2018, JMCB).



Differing Approaches

Figure 1
Labor Shares in the United States

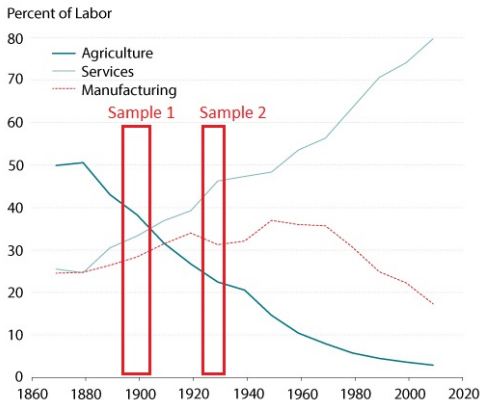


SOURCE: 1869-1957: Kendrick (1961); 1929-2008: the Bureau of Economic Analysis and Bureau of Labor Statistics.



Differing Approaches

Figure 1
Labor Shares in the United States

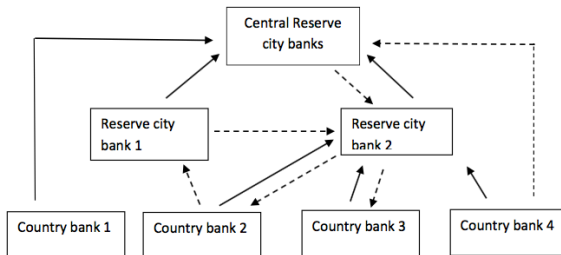


SOURCE: 1869-1957: Kendrick (1961); 1929-2008: the Bureau of Economic Analysis and Bureau of Labor Statistics.



Pre-Fed Correspondent Relationships

Figure 1
Illustration of how interbank balances might occur



Note. Solid lines indicate balances that could be reported on the call report as "due from reserve agents." Dashed lines indicate balances that would be reported as "due from other national banks."

Source: Carlson and Wheelock (2016)



- National Banking Act created a dual banking system
 - State banks (state chartered and regulated)
 - National banks (regulated by the OCC)
 - Branch banking mainly prohibited for both
 - Pyramid reserve system
- Interconnected correspondent banking system
 - Core-periphery architecture
 - Payments clearing
 - Invest surplus funds in financial markets (call loans)
 - Hold deposits
 - Borrow in times distress



Institutional Structure – Pre-Fed (continued)

- Seasonal liquidity issues arise
 - Harvesting and planting seasons \Rightarrow Seasonal fluctuations in credit
 - Interior banks borrow or remove funds from larger cities to meet local demands
 - "Inelastic currency" \Rightarrow Interest rates rise and credit contracts in peak agricultural seasons
- Transmission of shocks in the correspondent system
 - Interbank network transmits shocks from the periphery of the banking system to the core (New York City)
 - Banks in New York suspend payments
 - \Rightarrow Interior banks cannot withdraw from New York
 - \Rightarrow All banks suspend payments

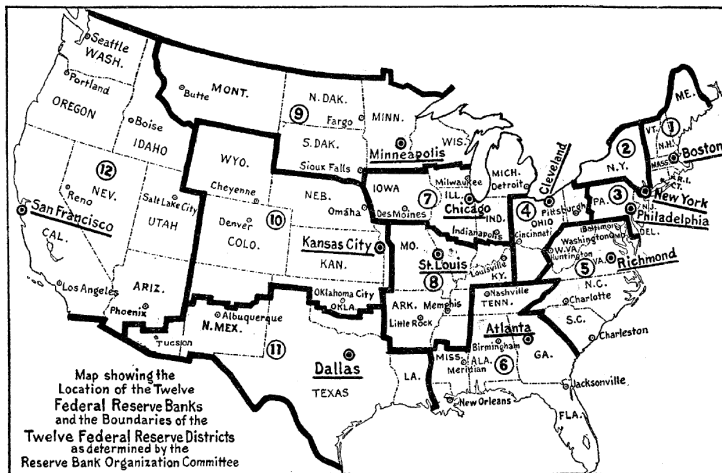


Constraints and Motivation for Fed Discounting

- Fed banks could discount notes from commercial transactions
 - Prohibited notes: corporate bonds, stocks, or other securities
 - Maturity lengths of 90 days or less on commercial paper
 - Notes on agriculture or livestock: maturities up to 6 months
- Only non-speculative loans could be discounted by the Fed
 - Sever connection between banking sector and stock market
 - Curtail the occurrence movement of funds from the interior/rural parts of the U.S. to the central money market
- If there is sufficient volume of discounting
 - ① Dampen seasonal fluctuations in interest rates
 - ② Encourage commercial paper market like London
 - ③ Discourage instability created by call loan market

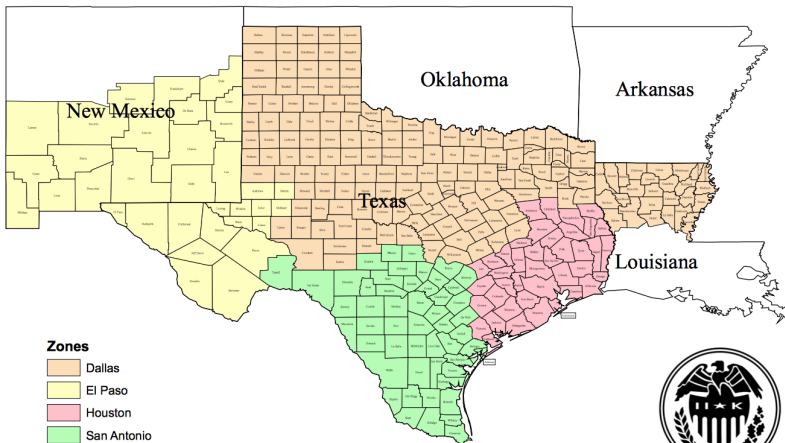


Decentralized Federal Reserve System

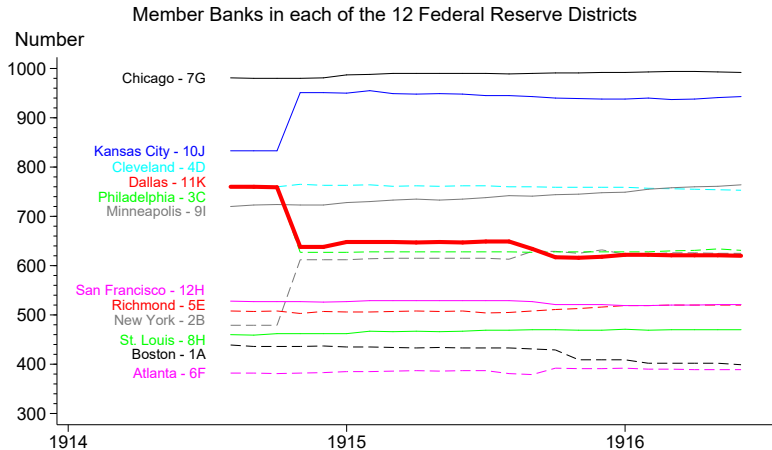


Decentralized Federal Reserve System

THE ELEVENTH FEDERAL RESERVE DISTRICT



Initial of member banks “redistribution” across districts



Source: Federal Reserve Bulletin (March 1915 - June 1917)



Most of the activity in the Dallas Fed District in Texas

168

FEDERAL RESERVE BULLETIN.

JULY 1, 1915.

Amounts of paper rediscounted during April and May by each of the Federal reserve banks, distributed by States, and maturities as of date of rediscount—Continued.

[In thousands of dollars.]

Districts and States.	Number of member banks.		Number of banks accommodated.		Paper maturing within 30 days.		Paper maturing after 30 days but within 60 days.		Paper maturing after 60 days but within 90 days.		Paper maturing after 90 days.		Total commercial paper rediscounted.	
	April.	May.	April.	May.	April.	May.	April.	May.	April.	May.	April.	May.	April.	May.
District No. 11.—Dallas:														
Arizona.....	6	6												
Louisiana.....	26	26	4	6	34.4	12.0	57.3	58.4	92.7	89.7		19.8	234.4	179.9
New Mexico.....	28	28	5	4		3.9	21.4	10.1	52.4	10.0	11.8	43.5	85.6	67.5
Oklahoma.....	163	163	29	23	11.9	12.2	91.5	32.8	118.3	97.9	182.1	126.0	403.8	268.9
Texas.....	537	537	100	120	84.6	89.9	520.4	475.0	684.5	564.7	638.6	838.8	1,928.1	1,968.4
Total.....	760	760	138	153	180.9	118.0	690.6	576.3	947.9	762.3	832.5	1,028.1	2,651.9	2,484.7



DISTRIBUTION OF REDISCOUNTS.

The total amount of commercial paper, exclusive of acceptances, rediscounted during the month of July was \$13,238,200, compared with \$13,404,000 in June and \$12,145,700 in May. The number of notes rediscounted was 10,155 in July, as against 10,734 in June and 9,558 in May.

The three southern banks handled about 70 per cent of the entire number and about 64 per cent of the entire amount of the commercial paper rediscounted during the month. The average size of all notes discounted by the Federal

paper offered for rediscount being as a rule higher in the South than in the other sections of the country. Thus the proportion of 30-day paper rediscounted by the three southern banks was less than 45 per cent of the combined amount of 10-day and 30-day paper rediscounted by all the banks, as against 64 per cent shown as their share of total rediscounts. Dallas, whose proportion of total rediscounts for the month is 16.1 per cent, is credited with the discount of less than 1 per cent of the 30-day paper.

The four eastern banks report about 32 per cent of the combined amount of 10-day and



Relative importance in commercial paper discounts

SEPTEMBER 1, 1915.

FEDERAL RESERVE BULLETIN.

289

Commercial paper, exclusive of bank acceptances, rediscounted by each of the Federal reserve banks during the month of July, 1915, distributed by sizes.

NUMBER OF PIECES AND AMOUNTS.

[In thousands of dollars.]

Bank.	To \$100.		\$100 to \$250.		\$250 to \$500.		\$500 to \$1,000.		\$1,000 to \$2,500.		\$2,500 to \$5,000.		\$5,000 to \$10,000.		Over \$10,000.		Total.		Per cent.
	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	
Boston.....	5	0.5	11	2.0	32	13.1	39	29.8	28	46.4	20	89.8	2	20.0	.....	.....	137	201.6	1.5
New York.....	7	.5	50	8.0	63	23.4	53	38.4	53	87.1	23	85.6	8	58.0	2	32.0	259	334.0	2.5
Philadelphia...	17	2.3	32	5.2	53	20.7	66	51.5	58	104.6	39	152.8	11	104.0	3	42.0	279	483.1	3.7
Cleveland.....	7	.4	21	4.1	28	10.1	31	20.6	34	55.2	29	118.7	20	123.9	2	40.0	172	373.0	2.8
Richmond.....	333	25.7	609	109.6	894	277.7	616	501.6	481	848.0	370	1,507.5	90	736.4	19	347.8	3,212	4,354.3	32.9
Atlanta.....	277	18.6	424	73.1	369	141.8	335	266.8	257	441.3	165	662.3	40	293.5	7	93.6	1,874	1,991.0	15.0
Chicago.....	9	.7	22	4.4	59	23.6	75	62.2	96	159.9	50	201.6	19	174.7	2	35.0	333	662.1	5.0
St. Louis.....	24	2.2	52	8.4	54	20.6	68	50.2	63	109.4	32	122.0	18	134.0	1	20.0	310	466.8	3.5
Minneapolis...	3	.2	50	8.4	84	30.9	114	79.0	110	168.7	78	282.2	26	169.6	4	61.3	469	800.3	6.1
Kansas City...	49	4.4	225	39.1	182	66.4	131	53.4	96	156.5	38	131.5	19	141.7	1	10.3	742	643.3	4.9
Dallas.....	188	13.7	567	92.1	403	150.3	339	245.3	310	488.9	151	552.7	47	338.6	15	254.6	2,020	2,136.2	16.1
San Francisco.	4	.3	41	7.2	59	22.4	68	48.9	75	125.5	56	222.2	35	227.3	10	138.7	348	792.5	6.0
Total.....	923	69.5	2,104	361.6	2,081	801.0	1,934	1,487.7	1,661	2,791.5	1,051	4,129.9	335	2,521.7	66	1,075.3	10,155	13,238.2	100.0



Relative importance in commercial paper discounts

SEPTEMBER 1, 1915.

FEDERAL RESERVE BULLETIN.

289

Commercial paper, exclusive of bank acceptances, rediscounted by each of the Federal reserve banks during the month of July, 1915, distributed by sizes.

NUMBER OF PIECES AND AMOUNTS.

[In thousands of dollars.]

Bank.	To \$100.		\$100 to \$250.		\$250 to \$500.		\$500 to \$1,000.		\$1,000 to \$2,500.		\$2,500 to \$5,000.		\$5,000 to \$10,000.		Over \$10,000.		Total.		Per cent.
	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	Number of pieces.	Amount.	
Boston.....	5	0.5	11	2.0	32	13.1	39	29.8	28	46.4	20	89.8	2	20.0	.....	.....	137	201.6	1.5
New York.....	7	.5	50	8.0	63	23.4	53	38.4	53	87.1	23	85.6	8	58.0	2	32.0	239	334.0	2.5
Philadelphia...	17	2.3	32	5.2	53	20.7	66	51.5	58	104.6	39	152.8	11	104.0	3	42.0	279	483.1	3.7
Cleveland.....	7	.4	21	4.1	28	10.1	31	20.6	34	55.2	29	118.7	20	123.9	2	40.0	172	373.0	2.8
Richmond.....	333	25.7	609	109.6	694	277.7	616	501.6	481	848.0	370	1,507.5	90	736.4	19	347.8	3,212	4,354.3	32.9
Atlanta.....	277	18.6	424	73.1	369	141.8	335	266.8	257	441.3	165	662.3	40	293.5	7	93.6	1,874	1,991.0	15.0
Chicago.....	9	.7	22	4.4	59	23.6	75	62.2	96	159.9	50	201.6	19	174.7	2	35.0	333	662.1	5.0
St. Louis.....	24	2.2	52	8.4	54	20.6	68	50.2	63	109.4	32	122.0	18	134.0	1	20.0	310	466.8	3.5
Minneapolis...	3	.2	50	8.4	84	30.9	114	79.0	110	168.7	78	282.2	26	169.6	4	61.3	469	800.3	6.1
Kansas City...	49	4.4	225	39.1	182	66.4	131	63.4	96	156.5	38	131.5	19	141.7	1	10.3	742	643.3	4.9
Dallas.....	188	13.7	567	92.1	403	150.3	339	245.3	310	488.9	151	552.7	47	338.6	15	254.6	2,020	2,136.2	16.1
San Francisco..	4	.3	41	7.2	59	22.4	68	48.9	75	125.5	50	222.2	35	227.3	10	138.7	348	792.5	6.0
Total.....	923	69.5	2,104	361.6	2,081	801.0	1,934	1,487.7	1,661	2,791.5	1,051	4,129.9	335	2,521.7	66	1,075.3	10,155	13,238.2	100.0



Less involved in the start-up of "acceptance markets"

Amounts of acceptances held by the several Federal reserve banks at close of business on Fridays from June 25 to July 23, 1915.

[In thousands of dollars.]

	Boston.	New York.	Philadelphia.	Cleveland.	Richmond.	Atlanta.	Chicago.	St. Louis.	Minneapolis.	Kansas City.	Dallas.	San Francisco.	Total.
Acceptances maturing within 30 days:													
June 25.....	\$859	\$1,684	\$213	\$148	.....	.....	\$364	\$280	\$126	\$398	.....	\$574	\$4,746
July 2.....	739	1,714	452	155	.....	.....	237	261	120	411	.....	260	4,349
July 9.....	603	1,249	466	101	.....	.....	236	218	49	331	.....	224	3,477
July 16.....	602	979	368	49	.....	.....	74	17	25	307	.....	124	2,545
July 23.....	586	740	371	48	.....	.....	74	18	34	208	.....	124	2,205
Acceptances maturing after 30 days but within 90 days:													
June 25.....	582	928	403	49	.....	.....	74	18	25	224	.....	124	2,427
July 2.....	470	955	173	16	.....	.....	98	46	18	191	.....	160	2,127
July 9.....	445	2,215	132	16	.....	.....	36	44	17	191	.....	234	3,330
July 16.....	402	2,219	442	16	.....	.....	36	44	17	27	.....	134	3,337
July 23.....	399	2,349	574	53	.....	.....	69	47	17	27	.....	234	3,774
Acceptances maturing after 90 days but within 180 days:													
June 25.....	500	2,019	359	16	.....	.....	37	44	17	10	.....	204	3,206
July 2.....	474	2,159	449	16	.....	.....	12	16	10	11	.....	195	3,344
July 9.....	472	1,371	707	25	.....	.....	25	25	25	36	.....	100	2,756
July 16.....	603	1,415	445	90	.....	.....	153	83	90	71	.....	125	3,689
July 23.....	1,110	2,014	522	95	.....	.....	295	124	115	118	.....	56	4,359
Total:													
June 25.....	2,041	4,631	975	213	.....	.....	475	342	168	632	.....	902	10,379
July 2.....	1,683	4,528	1,074	187	.....	.....	347	322	148	613	.....	618	9,820
July 9.....	1,520	4,835	1,305	142	.....	.....	297	287	91	558	.....	558	9,593
July 16.....	1,609	4,613	1,255	155	.....	.....	275	144	132	405	.....	383	8,971
July 23.....	2,097	5,103	1,467	201	.....	.....	348	189	166	353	.....	414	10,338

¹ Includes \$90,500 of acceptances maturing after 90 days but within 3 months.



Less involved in the start-up of "acceptance markets"

Amounts of acceptances held by the several Federal reserve banks at close of business on Fridays from June 25 to July 23, 1915.

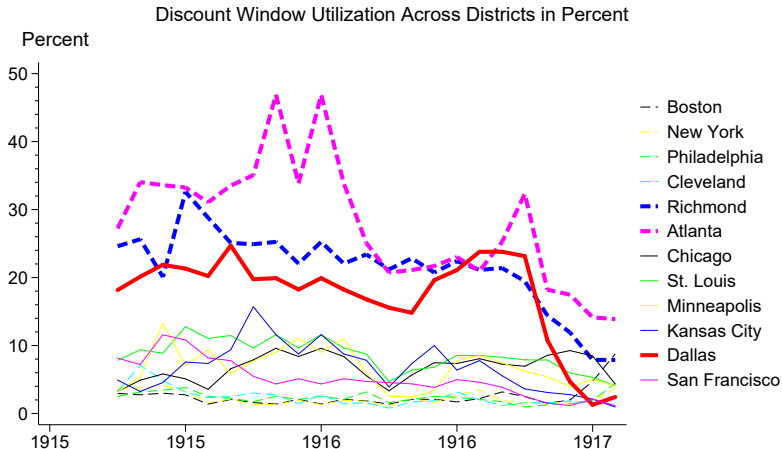
[in thousands of dollars.]

	Boston.	New York.	Philadelphia.	Cleveland.	Richmond.	Atlanta.	Chicago.	St. Louis.	Minneapolis.	Kansas City.	Dallas.	San Francisco.	Total.
Acceptances maturing within 30 days:													
June 25.....	\$859	\$1,684	\$213	\$148			\$364	\$280	\$126	\$398		\$574	\$4,746
July 2.....	739	1,714	452	155			237	261	120	411		260	4,849
July 9.....	603	1,249	466	101			236	218	49	331		224	3,477
July 16.....	602	979	368	49			74	17	25	307		124	2,545
July 23.....	586	740	371	48			74	18	34	208		124	2,205
Acceptances maturing after 30 days but within 60 days:													
June 25.....	582	928	403	49			74	18	25	224		124	2,427
July 2.....	470	955	173	16			98	46	18	191		160	2,127
July 9.....	445	2,215	132	16			36	44	17	191		234	3,330
July 16.....	402	2,219	442	16			36	44	17	27		134	3,337
July 23.....	399	2,349	574	53			69	47	17	27		234	3,774
Acceptances maturing after 60 days but within 90 days:													
June 25.....	500	2,019	359	16			37	44	17	10		204	3,206
July 2.....	474	2,159	449	16			12	16	10	11		195	3,344
July 9.....	472	1,371	707	25			25	25	25	36		100	2,756
July 16.....	603	1,415	445	90			153	83	90	71		125	3,689
July 23.....	1,110	2,014	522	95			295	124	115	118		56	4,359
Total:													
June 25.....	2,041	4,631	975	213			475	342	168	632		902	10,379
July 2.....	1,683	4,528	1,074	187			347	322	148	613		618	9,820
July 9.....	1,520	4,835	1,305	142			297	287	91	558		558	9,593
July 16.....	1,609	4,613	1,255	155			275	144	132	405		383	9,971
July 23.....	2,097	5,103	1,467	201			348	189	166	353		414	10,338

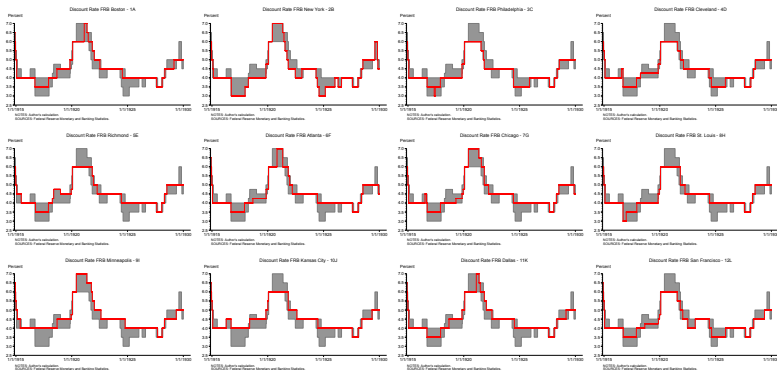
¹ Includes \$90,500 of acceptances maturing after 90 days but within 3 months.



Discount window utilization differed widely

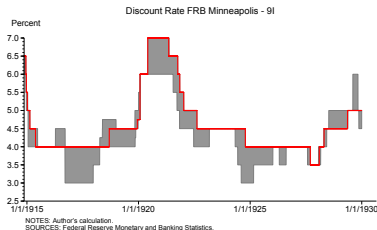
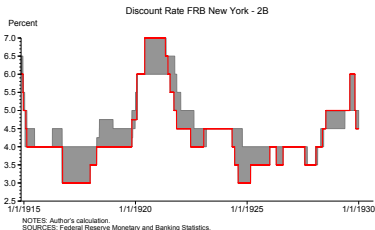


Policies Differed Across FRB Districts Prior to 1935

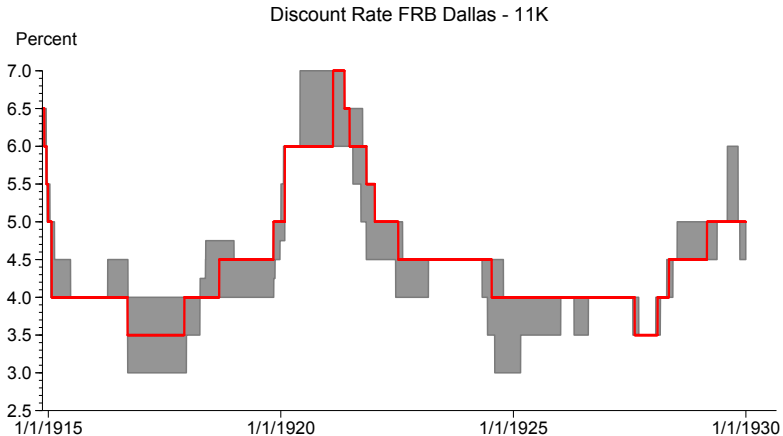


Policies Differed Across FRB Districts Prior to 1935

For example: New York Fed versus Minneapolis Fed



FRB Dallas Discount Rate



NOTES: Author's calculation.

SOURCES: Federal Reserve Monetary and Banking Statistics.



Discount Ledger Based Rate

24

DISCOUNT RATES OF THE FEDERAL

Dates on which rates were put into effect.	Character of paper and maturities.						Agricultural and live-stock paper over 90 days.	Commodity paper within 90 days.
	Commercial, agricultural, and live-stock paper.							
	Within 10 days.	11 to 30 days.	Within 15 days.	16 to 30 days.	31 to 60 days.	61 to 90 days.		
	Within 10 days.	11 to 30 days.	Within 15 days.	16 to 30 days.	31 to 60 days.	61 to 90 days.		
1914—Nov. 15.....	6	6			6	6	6	
Dec. 1.....					6	6	6	
Dec. 11.....	5	5						
Dec. 18.....	5	5			5			
Dec. 30.....					5	5		
1915—Jan. 15.....	4	4						
Jan. 28.....	4	4			4	4	5	
Feb. 4.....							5	
Feb. 17.....								
Aug. 5.....								
Sept. 8.....								3
Nov. 15.....						4	4	
1916—Jan. 12.....								
Mar. 30.....								
Sept. 15.....	(¹)	(²)	{ ³ / ₄ 4	4				
1917—Jan. 24.....			{ ³ / ₄ 4			4	5	5
May 23.....								
Nov. 2.....								(⁴)
Dec. 5.....			4	4	4			
Dec. 21.....								
1918—Apr. 15.....				4	4	5	5	
Sept. 5.....			4					
1919—May 15.....								
Sept. 2.....								
Nov. 10.....			5	5	5			
Dec. 15.....								
1920—Feb. 2.....			6	6	6	6	6	
Feb. 6.....								
Feb. 26.....								
Apr. 5.....								
June 10.....								
July 13.....								
1921—Feb. 15.....			7	7	7	7	7	
May 16.....			5	5	5	5	5	
June 25.....			6	6	6	6	6	
Nov. 4.....			5	5	5	5	5	

¹ Treasury notes first issued as of June 15, 1921.

² Applies to maturities of 60 days or less.

³ Discontinued.

⁴ Applies only to member banks' collateral notes.

⁵ Rates agreed with those applicable to commercial notes of corresponding maturity.

25

RESERVE BANK OF DALLAS, 1914-1921.

Character of paper and maturities—Continued.									
Trade acceptances.		Bankers' acceptances within 3 months.	Paper secured by—				Authorized rates on acceptances purchased in open market.		Dates on which rates were put into effect.
			Treasury notes ¹ and certificates of indebtedness.		Liberty bonds and Victory notes.				
Within 15 days.	16 to 90 days.		Within 15 days.	16 to 90 days.	Within 15 days.	16 to 90 days.	Minimum.	Maximum.	
									1914—Nov. 15.
									Dec. 1.
									Dec. 11.
									Dec. 18.
									Dec. 30.
									1915—Jan. 13.
									Jan. 25.
									Feb. 4.
									Feb. 17.
3 $\frac{3}{4}$	3 $\frac{3}{4}$ 4						2	4	Aug. 5.
									Sept. 8.
									Nov. 15.
3 $\frac{3}{4}$									1916—Jan. 12.
							3	5	Mar. 29.
									Sept. 15.
			3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$	3 $\frac{3}{4}$			1917—Jan. 24.
									May 23.
									Nov. 2.
	3 $\frac{3}{4}$ 4			4		4			Dec. 5.
4	4 $\frac{1}{2}$			4	4 $\frac{1}{2}$	4	4 $\frac{1}{2}$	4	Dec. 21.
4 $\frac{1}{2}$									1918—Apr. 15.
									Sept. 5.
						4 $\frac{1}{2}$			1919—May 15.
3	5		*4-4 $\frac{1}{2}$	*4 $\frac{1}{2}$ -4 $\frac{1}{2}$		4 $\frac{1}{2}$			Sept. 2.
			4 $\frac{1}{2}$	4 $\frac{1}{2}$		4 $\frac{1}{2}$			Nov. 10.
6	6	5	4 $\frac{1}{2}$	4 $\frac{1}{2}$	5	5			Dec. 15.
					5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$		1920—Feb. 2.
		5 $\frac{1}{2}$		5			5		Feb. 6.
									Feb. 26.
6 $\frac{1}{2}$	6 $\frac{1}{2}$								Apr. 5.
6	6	5		*5-6	*5-6				June 10.
5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$	5 $\frac{1}{2}$			July 13.
									1921—Feb. 15.
									May 16.
									June 25.
									Nov. 4.

NOTE.—Graded discount rates are discussed on page 30.

NOTE.—Rates on paper secured by War Finance Corporation bonds were established Apr. 4, 1919, at 1 per cent in excess of the rate applicable to commercial paper of corresponding maturity, and were authorized in discount of 100 per cent with the maturity of the bonds.



Discount Ledger Based Rate

DISCOUNT RATES OF THE FEDERAL

Dates on which rates were put into effect.	Character of paper and maturities.							
	Commercial, agricultural, and live-stock paper.						Agricultural and live-stock paper over 90 days.	Commodity paper within 90 days.
	Within 10 days.	11 to 30 days.	Within 15 days.	16 to 30 days.	31 to 60 days.	61 to 90 days.		
1914—Nov. 16.....	6	6			6½	6½	6½	
Dec. 1.....					6	6	6	
Dec. 11.....	5½	5½						
Dec. 18.....	5	5			5½			
Dec. 30.....					5	5½		
1915—Jan. 13.....	4½	4½						
Jan. 28.....	4	4			4	4½	5½	
Feb. 4.....							5	
Feb. 17.....								



DISCOUNT RATES OF THE FEDERAL

Dates on which rates were put into effect.	Character of paper and maturities.							
	Commercial, agricultural, and live-stock paper.						Agricultural and live-stock paper over 90 days.	Commodity paper within 90 days.
	Within 10 days.	11 to 30 days.	Within 15 days.	16 to 30 days.	31 to 60 days.	61 to 90 days.		
1914—Nov. 16.....	6	6			6½	6½	6½	
Dec. 1.....					6	6	6	
Dec. 11.....	5½	5½						
Dec. 18.....	5	5			5½			
Dec. 30.....					5	5½		
1915—Jan. 13.....	4½	4½						
Jan. 28.....	4	4			4	4½	5½	
Feb. 4.....							5	
Feb. 17.....								



Data Sources: Dallas Fed Transaction Ledger

FEDERAL RESERVE BANK, OF DALLAS, TEX.
TO
FEDERAL RESERVE BOARD, WASHINGTON, D. C.

Discounted--Customers Date JANUARY 19TH 1915.

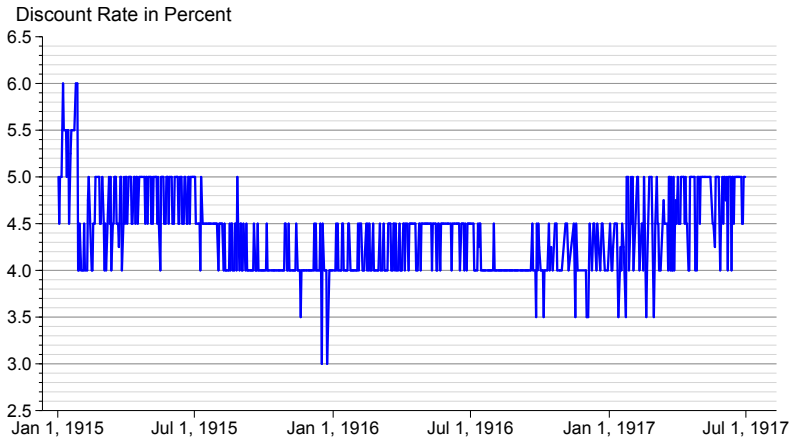
PAVER	PLACE	COLLATERAL	DUE	AMOUNT	RATE	DISCOUNT	PROCEEDS	ENDORSERS
		NONE	3-10	592.18	5	4.11	588.07	
		NONE	3-17	1470.66	5	11.64	1459.02	
		NONE	4-12	1025.00	5.5	13.00	1012.00	
		NONE	4-12	410.11	5.5	5.20	404.91	
		NONE	4-15	2150.00	5.5	28.25	2121.75	
		NONE	4-16	3587.50	5.5	47.68	3539.82	
		NONE	5-1	600.00	6	10.20	589.80	
		NONE	6-30	344.50	6	9.30	335.20	
		NONE	7-12	2489.31	6	72.19	2417.12	
		NONE	7-12	1066.11	6	30.92	1035.19	
		NONE	7-14	731.96	6	21.47	710.49	
		NONE	7-16	271.01	6	8.04	262.97	
		COTTON & COTTON SEED PRODUCTS	3-20	5000.00	5	41.67	4958.33	
		DO.	3-20	5000.00	5	41.67	4958.33	
		NONE	3-15	4000.00	5	30.56	3969.44	
		C-M LIVE STOCK	4-8	1000.00	5.5	12.07	987.93	
		TRUST REC. 200 B-2.	4-19	6000.00	5.5	82.50	5917.50	
		NONE	2-15	30000.00	4.5	101.25	29898.75	
				<hr/> \$65738.34				

Discounts Described Hereon
Approved this Day.

[Signature]
[Signature]



Discount Ledger Average Rate



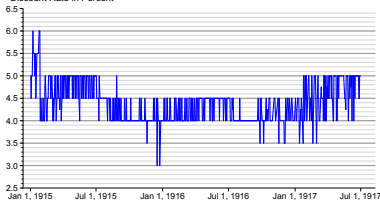
NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.

SOURCE: Federal Reserve Bank of Dallas; Member Banks Collateral Notes Ledger.



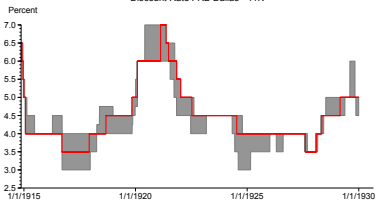
Discount Ledger Average Rate

Discount Rate in Percent



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCE: Federal Reserve Bank of Dallas; Member Banks Collateral Notes Ledger.

Discount Rate FRB Dallas - 11K



NOTES: Author's calculation.
SOURCES: Federal Reserve Monetary and Banking Statistics.



- Federal Reserve Annual Reports (1914-1920)
- Federal Reserve Board Monthly Bulletin
- Monetary and Banking Statistics
- Rand McNally (potential use of Polk in the future)
- FRB Dallas Board of Director Minutes
- FRB Dallas Daily Ledger



Data Sources: Discount window illustrated

Description: B & W 3x4.25

Document ID: 67291

Title: Two Dallas Fed employees at the Discount Window, 1964



Data Sources: Rand-McNally Bankers' Directory

"The Book You Were Brought Up On"

THE RAND-MCNALLY BANKERS' DIRECTORY

Published continuously since 1872.

The original "Bankers' Blue Book."

The most complete reference book of its kind published.

"A Reliable Book published by a Responsible House."

"The Bankers' Market Place"

"Banks having a commodity—service to other banks—to sell, should advertise it."

CAUTION.—Do not confuse this standard work with the many inferior publications on the market.

A POLL OF THE JURY

"The following table was compiled from the final Official List of banking institutions represented at the American Bankers' Convention held in Detroit in 1912. 'This is a concrete statement over our name, not an unauthoritative generalization. It is statistics, not guess work.' It shows the percentage of banking institutions represented at that convention which purchased the Rand-McNally Bankers' Directory in 1912. Only one representative is counted for each bank. 'It is universally agreed by directory publishers that not more than 75% of banking institutions in the United States ever buy a bankers' directory,

and there are seven other similar publications on the market. Draw your own inferences.

Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912
Alabama..... 70	Indiana..... 58	Nevada..... 56	South Carolina..... 20
Alaska..... 10	Iowa..... 58	New Hampshire..... 5	South Dakota..... 60
Arizona..... 20	Kansas..... 58	New Jersey..... 15	Tennessee..... 20
Arkansas..... 20	Kentucky..... 58	New Mexico..... 5	Texas..... 60
California..... 60	Louisiana..... 58	New York..... 15	Utah..... 15
Colorado..... 15	Maine..... 25	North Carolina..... 15	Vermont..... 20
Connecticut..... 15	Massachusetts..... 45	North Dakota..... 15	Washington..... 15
Delaware..... 15	Michigan..... 52	Ohio..... 20	West Virginia..... 15
District of Columbia..... 20	Minnesota..... 45	Oklahoma..... 20	Wisconsin..... 15
Florida..... 15	Mississippi..... 15	Oregon..... 40	Wyoming..... 15
Georgia..... 15	Missouri..... 65	Pennsylvania..... 60	Canada..... 100
Idaho..... 15	Montana..... 60	Rhode Island..... 100	Mexico..... 100

A SAMPLE OF THE TESTIMONY

An Unsolicited Letter from one of the Most Prominent State Secretaries, (and not one of the four States mentioned below).

OFFICE OF THE SECRETARY

THE.....BANKERS' ASSOCIATION

Dec. 11, 1911.

Mr. Geo. K. Reed, Manager,
Rand-McNally Bankers' Directory,
Chicago, Ill.

Dear Sir:—The loose sheets of the banks in the State of.....reached me the day after my telegram was sent you. I appreciate very much your promptness in this matter.

Our membership dues are graded and based upon the amount of capital and surplus of each bank. Last year we used a bank directory published by a New York concern and after the drafts for dues went out a large number of them were returned, owing to the fact that dues had been mis-stated because the directory had not given the proper figures as to capital and surplus. This year I made an effort to ascertain the most reliable bank directory and the evidence was ALL in favor of yours, which explains my desire for the sheets.

When your next directory is published I wish you would send me a copy with bill therefor, and I will be very glad to remit at once. Also please send me statement to cover charges for the loose leaves.

Yours very truly,

Secretary.

THE VERDICT

THE RAND-MCNALLY
BANKERS'
DIRECTORY

"A reliable book published by a responsible house."

Official Numbering Agent for
American Bankers' Association
Ohio Bankers' Association
Montana Bankers' Association
Kansas Bankers' Association
Kentucky Bankers' Association

Increased Circulation in 1911-15
Increased Circulation in 1912 over 1911—20%



Data Sources: Rand-McNally Bankers' Directory

"The Book You Were Brought Up On"

THE RAND-MCNALLY BANKERS' DIRECTORY

Published continuously since 1872.

The original "Bankers' Blue Book."

The most complete reference book of its kind published.

"A Reliable Book published by a Responsible House."

"The Bankers' Market Place"

"Banks having a commodity—service to other banks—to sell, should advertise it."

CAUTION.—Do not confuse this standard work with the many inferior publications on the market.

A POLL OF THE JURY

"The following table was compiled from the final Official List of banking institutions represented at the American Bankers' Convention held in Detroit in 1912. 'This is a concrete statement over our name, not an unauthoritative generalization. It is statistics, not guess work.' It shows the percentage of banking institutions represented at that convention which purchased the Rand-McNally Bankers' Directory in 1912. Only one representative is counted for each bank. 'It is universally agreed by directory publishers that not more than 75% of banking institutions in the United States ever buy a bankers' directory,

and there are seven other similar publications on the market. Draw your own inferences.

Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912	Per Cent Purchasing "Rand-McNally" in 1912
Alabama..... 70	Indiana..... 58	Nevada..... 56	South Carolina..... 20
Alaska..... 10	Iowa..... 50	New Hampshire..... 5	South Dakota..... 40
Arizona..... 20	Kansas..... 50	New Jersey..... 15	Tennessee..... 40
Arkansas..... 20	Kentucky..... 50	New Mexico..... 5	Texas..... 60
California..... 60	Louisiana..... 50	New York..... 15	Utah..... 15
Colorado..... 25	Maine..... 25	North Carolina..... 15	Vermont..... 20
Connecticut..... 25	Massachusetts..... 45	North Dakota..... 15	Washington..... 15
Delaware..... 25	Michigan..... 50	Ohio..... 20	West Virginia..... 15
District of Columbia..... 25	Minnesota..... 40	Oklahoma..... 20	Wisconsin..... 15
Florida..... 25	Mississippi..... 40	Oregon..... 40	Wyoming..... 15
Georgia..... 25	Missouri..... 45	Pennsylvania..... 40	Canada..... 100
Idaho..... 15	Montana..... 60	Rhode Island..... 100	Mexico..... 100

A SAMPLE OF THE TESTIMONY

An Unsolicited Letter from one of the Most Prominent State Secretaries, (and not one of the four States mentioned below).

OFFICE OF THE SECRETARY

THE.....BANKERS' ASSOCIATION

Dec. 11, 1911.

Mr. Geo. K. Reed, Manager,
Rand-McNally Bankers' Directory,
Chicago, Ill.

Dear Sir:—

The loose sheets of the banks in the State of.....reached me the day after my telegram was sent you. I appreciate very much your promptness in this matter.

Our membership dues are graded and based upon the amount of capital and surplus of each bank. Last year we used a bank directory published by a New York concern and after the drafts for dues went out a large number of them were returned, owing to the fact that dues had been mis-stated because the directory had not given the proper figures as to capital and surplus. This year I made an effort to ascertain the most reliable bank directory and the evidence was ALL in favor of yours, which explains my desire for the sheets.

When your next directory is published I wish you would send me a copy with bill therefor, and I will be very glad to remit at once. Also please send me statement to cover charges for the loose leaves.

Yours very truly,

Secretary.

THE VERDICT

THE RAND-MCNALLY
BANKERS'
DIRECTORY

"A reliable book published by a responsible house."

Official Numbering Agent
for
Official Directory
for

American Bankers' Association
Ohio Bankers' Association
Minnesota Bankers' Association
Kansas Bankers' Association
Kentucky Bankers' Association

Increased Circulation in 1911—15%
Increased Circulation in 1912 over 1911—20%





TEXAS BANKS—Austin to Ballinger

Data Sources: Rand-McNally Bankers' Directory

953

Number under Name of Bank is the New Transit Number given to each bank in U. S. exclusively by The Rand-McNally Bankers' Directory, under the authority of The American Bankers Ass'n.

TEXAS—Continued

Accessible Towns, Lawyers, Law, Directors, included in back of this volume. For Interest Rates, Grace, etc., see page 11. For Holidays, see opposite page 11.

July, 1913

TOWN AND COUNTY. CITY OR STATE.	NAME OF BANK. MOR. AND RES. ASSN. STATE INCORP. STATE RES. ASSN. FOUN. EST.	PRESIDENT.	VICE PRESIDENT.	CASHIER.	ASST. CASHIER.	PAID-UP CAPITAL.	SURPLUS AND PROFITS.	DEPOSIT- ITS.	ASSETS & RES. THE BANK'S ASSETS, EXCL. OF LOANS	ASSETS & RES. THE BANK'S ASSETS, EXCL. OF LOANS	PRINCIPAL CORRESPONDENTS.
*Austin, Travis J 4 Pop. 28,809	*AMERICAN NATIONAL BANK 88-18 +130	G. W. LITTLEFIELD	H. A. WOOD	L. J. SCHNEIDER	H. PFAEFFLIN	1,300,000	624,180	13,171,480	13,171,180	\$1,175,480	N. Bk. Com., Chase N. and N. City Bks., N. Y.; N. Bk. Rep. and Ft. Dear, N. Bk. Chil.; N. Bk. Com., St. L.; Comw. N. Bk., Kans. C.
		Collection and Correspondence solicited. Prompt attention to all inquiries. SEE ADVERTISEMENT ON OPPOSITE PAGE.									
	*AUSTIN NATIONAL BANK 88-17 +130	E. P. WILLIAMS	W. H. FOLTS	M. HIRSCHFELD	C. M. BARTHOLOMEW	300,000	438,000	4,000,000	3,000,000	1,530,800	N. Park and N. City Bks., N. Y.; 1st N. and Com'l N. Bks., Chi.
		United States Depository. Strongest Directory of any Bank here. Personal attention given Collections and all matters entrusted to us. Special Collection Rates to Banks and Merchants. TRY US. SEE ADVERTISEMENT ON MAP OF TEXAS.									
	*CITIZENS BK. & TRUST CO. 88-19 +130	W. R. Hamby	F. G. Smith	Chester Thrasher	R. E. Chambers	100,000	33,819	1,633,380	885,550	921,160	Irving N. Bk., N. Y.; N. City Bk., Chi.; State N. Bk., St. L.; Phil. N. Bk., Phil. Crocker N. Bk., San F.
	*STATE NATIONAL BANK 88-18 +130	J. H. Robinson, Jr.	Walter Bremont	J. G. Palm	S. J. vonKooneritz	100,000	75,000	1,400,000	1,400,000	700,000	Am. Ex. N. Bk., N. Y.; Com'l N. Bk., Chi.; 3d N. Bk., St. L.
	Texas Trust Co. 88-17 +130	S. Sparks	G. W. Walling, Jr.	H. A. Turner, Sec.	and Tr.	200,000	27,500		330,000	15,000	N. Park Bk., N. Y.; Com. Tr. Co., Kia. C.
	Austin Clearing House (Monthly indicated by +)	G. W. Littlefield	W. H. Folts	H. A. Turner, Sec. and Mgr.	W. H. Denison	15,000					1st N. Bk., Hou.; Levi Bk. & Tr. Co., Victoria, B.C.
Austwell, Refugio J 88-15 +130	First State Bank 88-15 +130	A. W. Miller	D. G. Swafford	B. M. Grafton	D. A. Gibes	10,000	420	28,850	5,120	28,850	South N. Bk., N. Y.; Am. Ex. N. Bk., Dallas; 1st N. Bk., Ind. Tex.
Avon, Jones H 2 Pop. 409	Avon State Bank 88-15 +130	A. M. Dwyer	D. R. Coates	R. L. Shambarger	J. H. McCann	10,000	6,910	53,310	42,740	32,810	N. Park Bk., N. Y.; Guaranty State Bk. & Tr. Co., Dallas
Avon, Jones H 2 Pop. 409	Avon State Bank 88-15 +130	T. M. Cason	J. H. Williams	H. H. Hall	J. E. Mothershead	10,000	750	17,810	22,730	2,490	1st N. Bk., Ft. Worth and Stanford, Tex.
Axtell, McLennan K 3 Pop. 280	First State Bank 88-15 +130	E. Savage	W. Warwick	C. B. Jones		10,000	870	18,140	14,030	10,960	Cent. Tex. Ex. N. Bk., Waco; N. Bk. Com. St. L.
Bagwell, Red River M 1 Pop. 500	Bagwell Bank 88-15 +130	H. I. Jones, Sr.	Herbert Jones	V. D. Jones		5,000	6,410	21,780	20,270	12,190	South N. Bk., N. Y.; 1st N. Bk., Paris, Tex.; 1st N. Bk., Chicago, Ill.
	First State Bank 88-15 +130	S. W. Love	C. H. Moore	T. S. Cason		20,000	8,560	10,330	42,580	8,700	McIntosh & Plan, N. Bk., Sherman, Tex.; 1st N. Bk., Paris, Tex.; Red River N. Bk., Clark ville, Tex.

TEXAS BANKS—Austin to Baltimore



Data Sources: Rand-McNally Bankers' Directory

953

Number under Name of Bank is the New Transit Number given to each bank in U. S. exclusively by The Rand-McNally Bankers' Directory, under the authority of The American Bankers Ass'n.

TEXAS—Continued

Accessible Towns, Lawyers, Law, Directors, included in back of this volume. For Interest Rates, Grace, etc., see page 14. For Holidays, see opposite page 13.

July, 1913

TOWN AND COUNTY. CITY OR STATE.	NAME OF BANK. •Mon. Adv. Res. Assn. State •Mon. Adv. Res. Assn. State •Mon. Adv. Res. Assn. State	PRESIDENT.	VICE PRESIDENT.	CASHIER.	ASST. CASHIER.	LIABILITIES. PAID-UP CAPITAL.	SURPLUS AND PROFITS.	DEPOSITS.	RESOURCES. Cash & Ex- Change. U. S. Bonds. Gov. Bonds. Other Assets.	PRINCIPAL CORRESPONDENTS.	
•Austin, Travis J 4 Pop. 28,866	*AMERICAN NATIONAL BANK 88-18 +130	G. W. LITTLEFIELD	H. A. WOOD	L. J. SCHNEIDER	H. PFAEFFLIN	1,300,000	1,024,180	13,171,480	13,171,480	1,175,480	N. Bk. Com., Chase N. Bk., N. Y.; N. Bk. Rep. and Ft. Dear, N. Bk. Chl.; N. Bk. Com., St. L.; Comw. N. Bk., Assn. Co.
		Collection and Correspondence solicited. Prompt attention to all inquiries. SEE ADVERTISEMENT ON OPPOSITE PAGE.									
	*AUSTIN NATIONAL BANK 88-17 +130	E. P. WILLIAMS	W. H. FOLTS	M. HIRSCHFELD	C. M. BARTHOLOMEW	300,000	438,900	4,000,000	3,000,000	1,530,900	N. Park and N. City Bks., N. Y.; 1st N. and Com'l. N. Bk., Chl.
		United States Depository. Strongest Directory of any Bank here. Personal attention given Collections and all matters entrusted to us. Special Collection Rates to Banks and Merchants. TRY US. SEE ADVERTISEMENT ON MAP OF TEXAS.									
	*CITIZENS BK. & TRUST CO. 88-19 +130	W. R. Hamby	F. G. Smith	Chester Thrasher	R. E. Chambers	100,000	33,819	1,633,380	885,550	921,160	Irving N. Bk., N. Y.; N. City Bk., Chl.; State N. Bk., St. L.; Phil. N. Bk., Phil.
	*STATE NATIONAL BANK 88-18 +130	J. H. Robinson, Jr.	Walter Bremont	J. G. Palm	S. J. vonKooneritz	100,000	75,000	1,400,000	1,400,000	700,000	Am. Ex. N. Bk., N. Y.; Com'l. N. Bk., Chl.; 3d N. Bk., St. L.
	Texas Trust Co. 88-17 +130	S. Sparks	G. W. Walling, Jr.	H. A. Turner, Sec.	and Tr.	200,000	27,500		330,000	15,000	N. Park Bk., N. Y.; Com. Tr. Co., Kia. C.
	Austin Clearing House (Monday indicated by +) Austin Clearing Bank 88-17 +130	G. W. Littlefield	W. H. Folts	H. A. Turner, Sec. and Mgr.	W. H. Denison	15,000					1st N. Bk., Hou.; Levi Bk. & Tr. Co., Victoria, B.C.
	First State Bank 88-18 +130	A. W. Miller	D. G. Swafford	B. M. Grafton	D. A. Gibes	10,000	420	28,850	1,120	28,550	South N. Bk., N. Y.; Am. Ex. N. Bk., Dallas
	Avery Exchange Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	N. Park Bk., N. Y.; Postmans Bk., St. L.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	South N. Bk., N. Y.; Texasian N. Bk., Tex.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	N. Park Bk., N. Y.; Guaranty State Bk. & Tr. Co., Dallas
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	1st N. Bk., Ft. Worth and Stamford, Tex.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	Cent. Tex. Ex. N. Bk., Waco; N. Bk. Com., St. L.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	South N. Bk., N. Y.; 1st N. Bk., Paris, Tex.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	1st N. Bk., Chicago, Tex.
	First State Bank 88-18 +130	A. P. Denison	B. H. Williams	W. O. Bryson	W. S. Lawson	10,000	4,800	48,000	50,370	33,800	Mothers & Plan. N. Bk., Sherman, Tex.; 1st N. Bk., Paris, Tex.; Red River N. Bk., Clarksville, Tex.

TEXAS BANKS—Austin to Baltimore



- What banks interacted with the Federal Reserve?
- Did establishment of the Fed affect bank network structure?
- Did establishment of the Fed affect bank asset structure?
- What type of liquidity insurance did the Fed actually provide?
 - ex-ante liquidity provision – before shock realization
 - ex-post liquidity provision – after shock realization

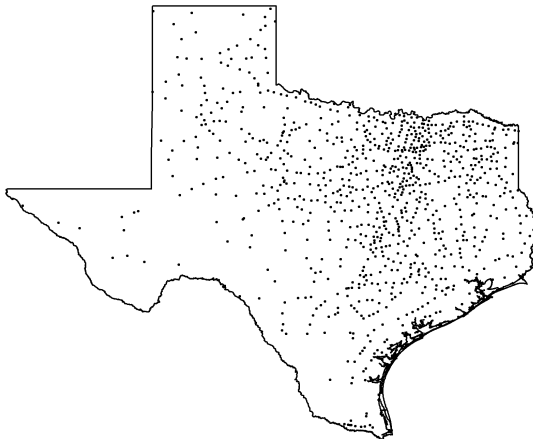


Where were Texas banks spatially distributed?

Where were banks accessing the discount window located?

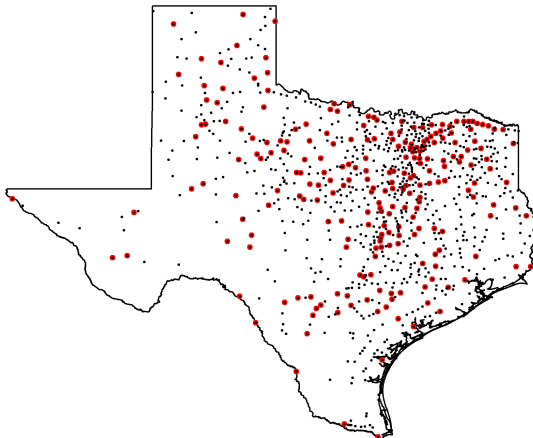
Spatial Distribution

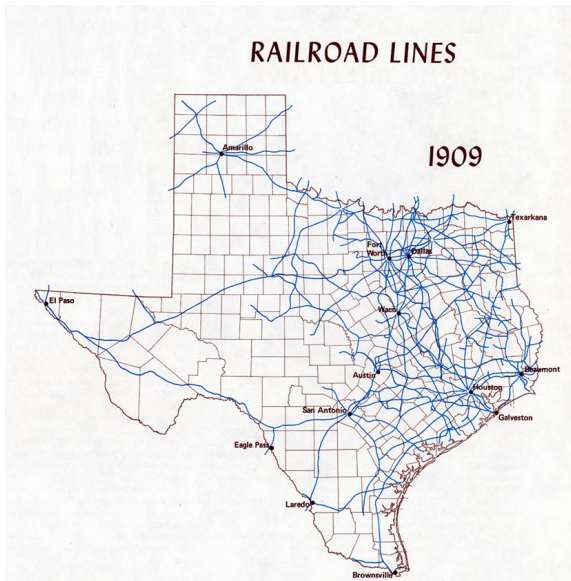
Cities with Banks in 1918



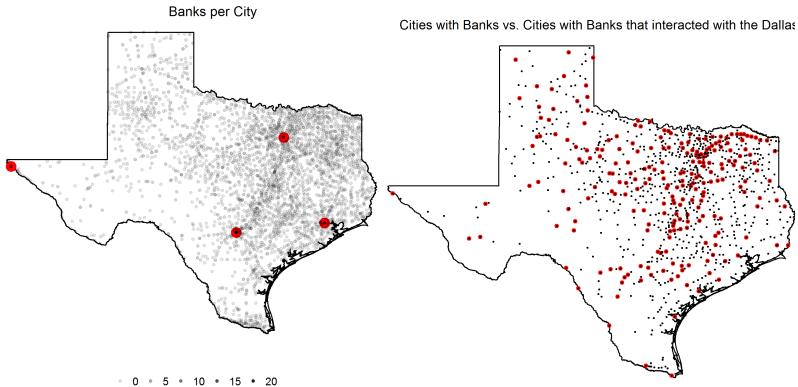
Spatial Distribution

Cities with Banks vs. Cities with Banks that interacted with the Dallas Fed

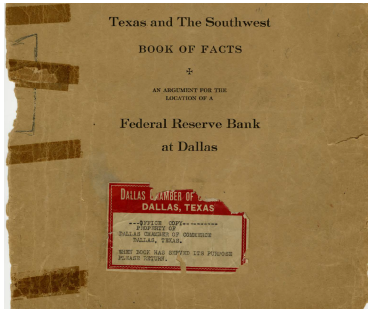




Spatial Distribution – Compared to banking “population”



Spatial Distribution – Compared to 1913 Dallas Deposits



100 MILE RADIUS CIRCLES AROUND DALLAS, ST. LOUIS AND KANSAS CITY, EXCLUDING THE POPULATIONS OF THE CENTRAL CITIES GIVEN.

	1910 Population	% Increase 1900-1910
Dallas - - - - -	1,279,160	13.0
Kansas City - - - - -	1,254,578	8.3
St. Louis - - - - -	1,587,441	12.5

Including the populations of the central cities, gains in population were:

Dallas - - - - -	18.0%
St. Louis - - - - -	14.8%
Kansas City - - - - -	1.4%

Total Dallas population, 1,486,941, being 40.3 per sq. mile, compared with 20.7 for Kansas, and 47.9 for Missouri.

As Many or More People within 100 Miles of Dallas than there are within 100 miles of St. Louis or Kansas City.

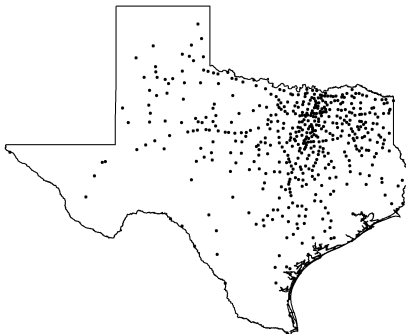
LIST OF BANKING TOWNS IN TEXAS CARRYING BALANCES IN DALLAS.

Abbot	Bluffdale	Depot	Hagerman
Abilene	Bivins	Detroit	Hallettsville
Addicks	Bristol	Dubville	Hamilton
Albe	Buckheila	Dodd City	Hanslin
Albany	Buffalo	Dorchester	Hartley
Aledo	Bullard	Dublin	Hartford
Allen	Buckburnett	Duncanville	Hartleton
Alma	Burcet	Eagle Lake	Harper
Alto	Burleson	Eagle Pass	Hasse
Alodge	Burton	Eaethad	Hawkins
Alvarado	Bynum	Ennis	Hawley
Alvord	Caddo Mills	Edgewood	Hedley
Amarillo	Caldwell	Edna	Hearne
Anderson	Calvert	El Campo	Heath
Anna	Cameron	Eldorado	Hebron
Ansonia	Campbell	Electra	Hempbill
Anson	Canadian	Elgin	Hempstead
Appleby	Canton	Elkhart	Henderson
Arlington	Canyon	Elmo	Hennetta
Arg	Carbon	El Paso	Hereford
Ashland	Corcoran	Elysian Fields	Hico
Asherton	Carrollton	Emory	Hillsboro
Athens	Carthage	Emhouse	Holland

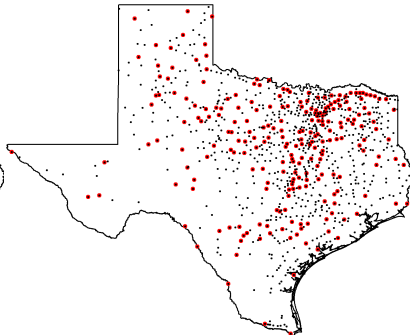


Spatial Distribution – Compared to 1913 Dallas Deposits

Pre-Fed Deposits in City of Dallas 1913

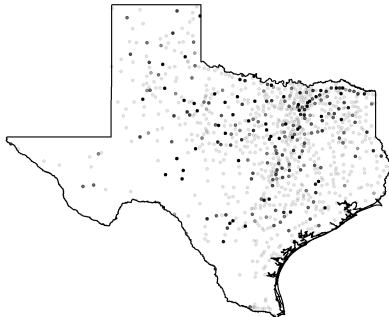


Cities with Banks vs. Cities with Banks that interacted with the Dallas



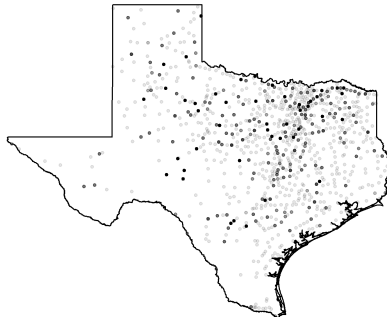
Spatial Distribution – Intensity of interaction

1918 - Banks interacting with FRBDAL/Banks in City



• 0.00 • 0.25 • 0.50 • 0.75 • 1.00

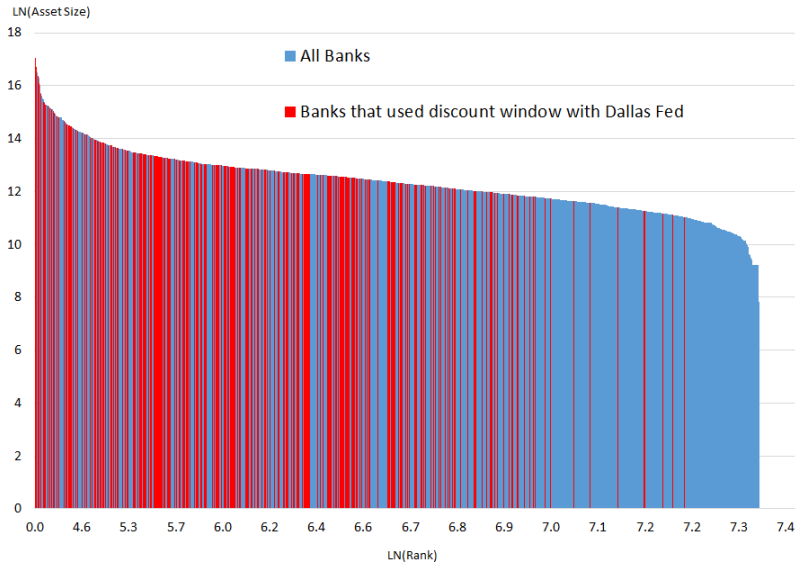
1918 - Assets interacting with FRBDAL/Assets in City



• 0.00 • 0.25 • 0.50 • 0.75 • 1.00

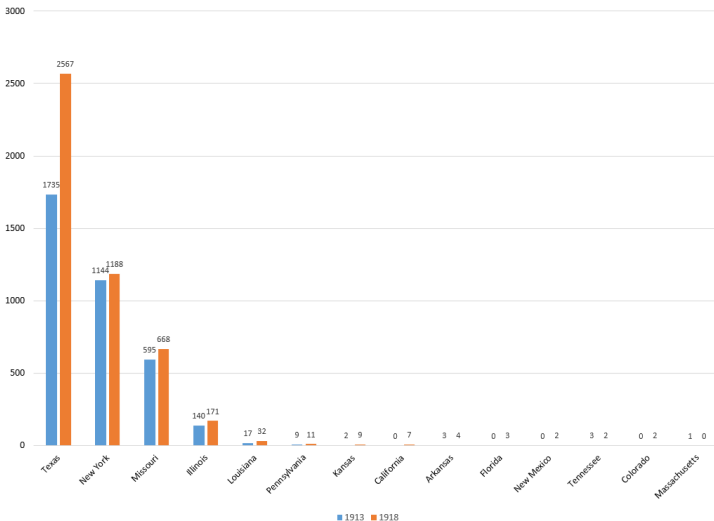


Banks discounting with the Fed tended to be larger banks



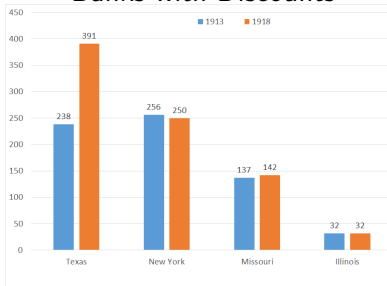
Rise in the Local (Texas) Network Density

Number of correspondents by U.S. state

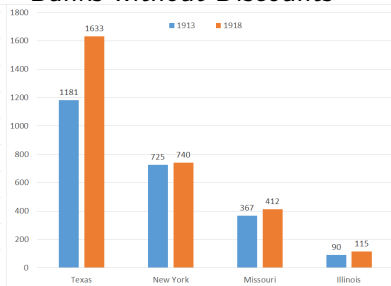


Differential Rise in the Network Density

Banks with Discounts

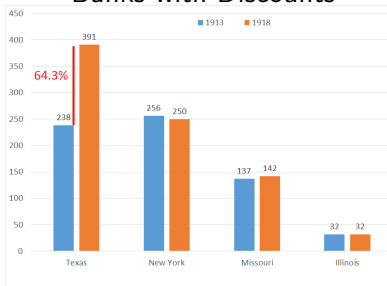


Banks without Discounts

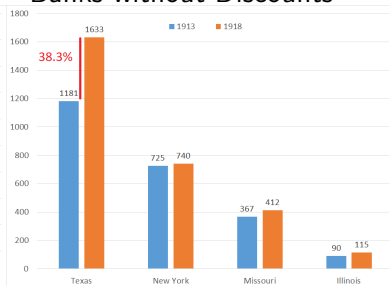


Differential Rise in the Network Density

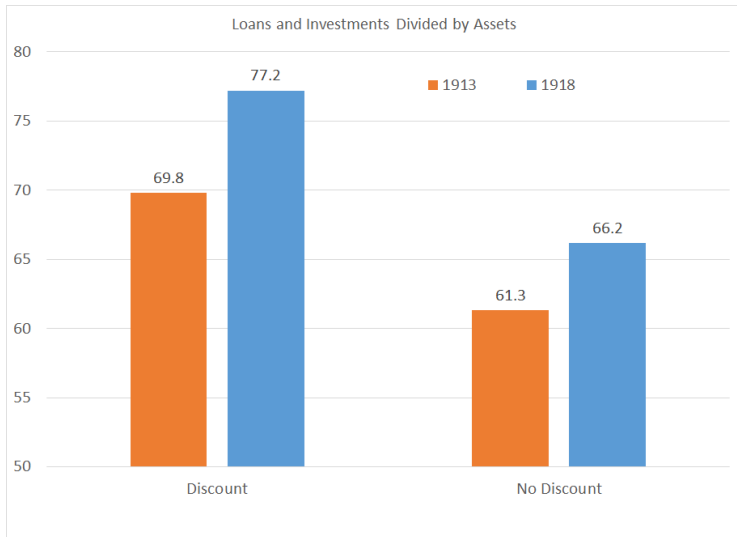
Banks with Discounts



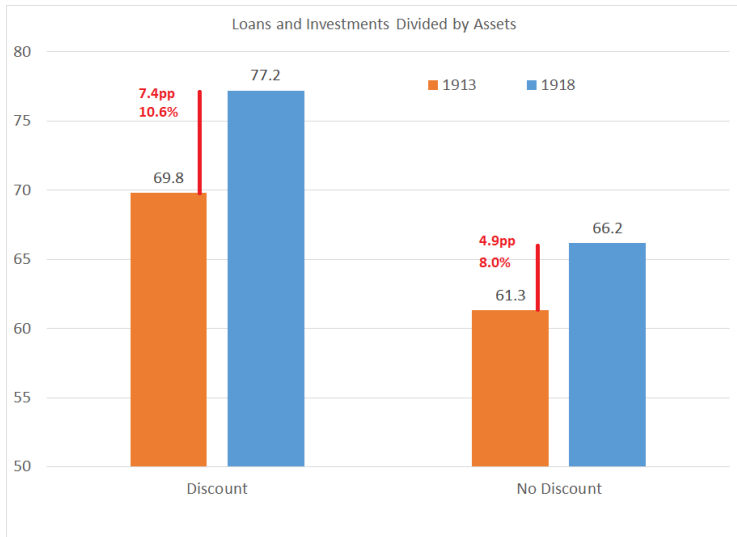
Banks without Discounts



Impact on Loan Ratio



Impact on Loan Ratio



How did the Fed accommodate liquidity needs?

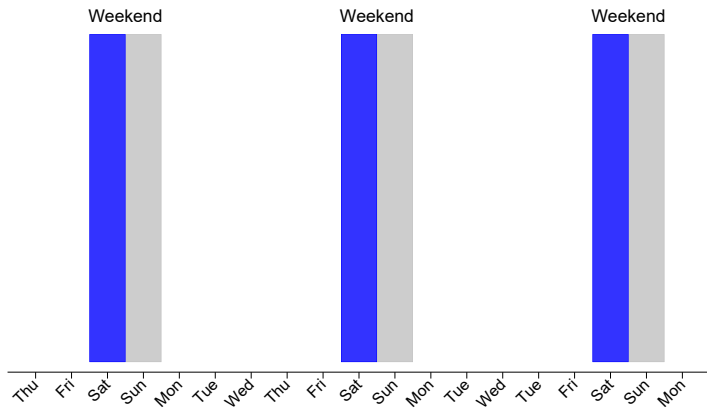
Federal Reserve could prevent panics by its mere presence.

Our analysis suggests, it was more than that ...

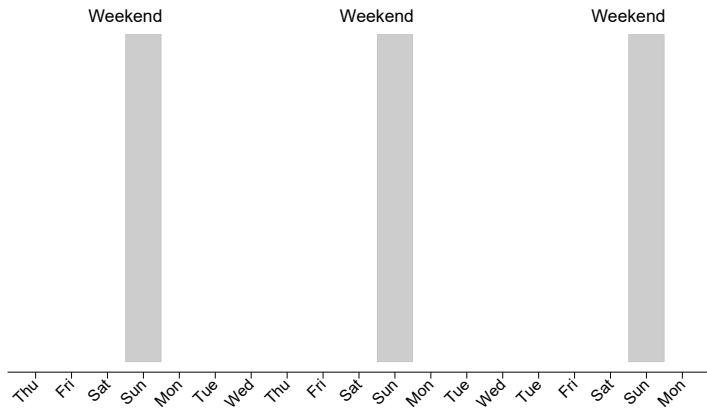
Here's why ...



Details on the mechanism



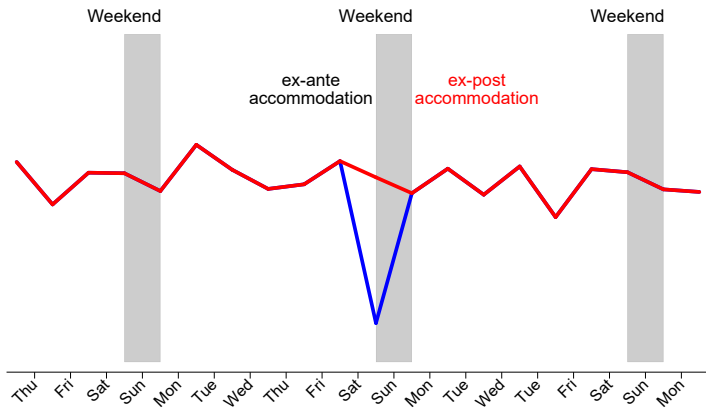
Details on the mechanism



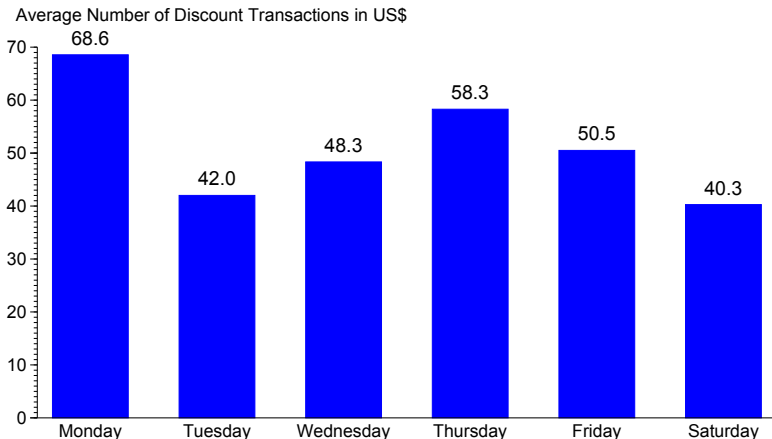
Details on the mechanism



Details on the mechanism



Number of Loans by Weekday

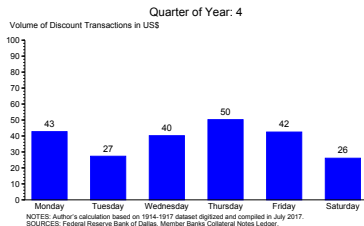
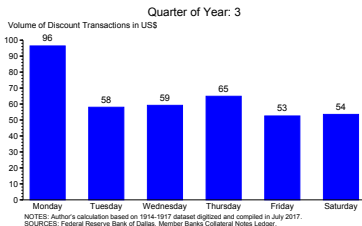
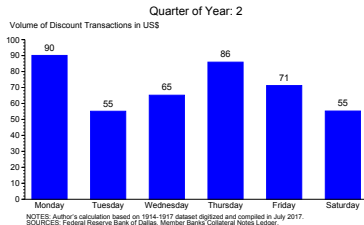
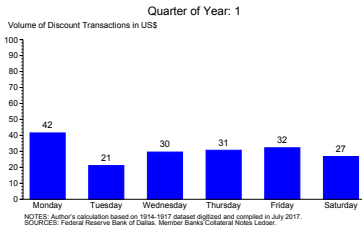


NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.

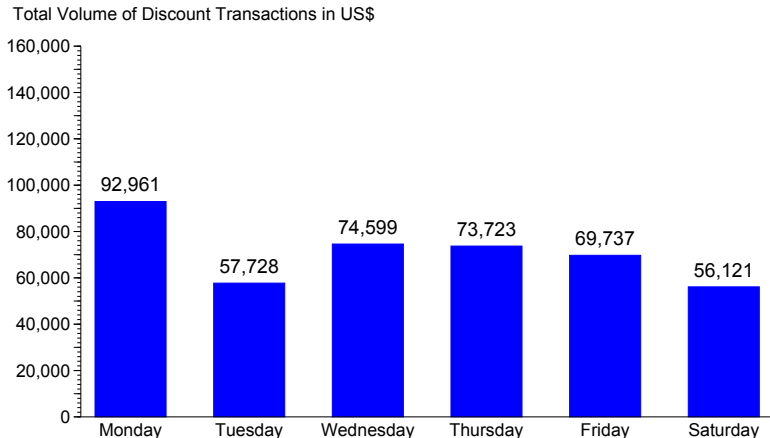
SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.



Number of Loans by Weekday by Quarter of Year



Total Volume of Loans by Weekday



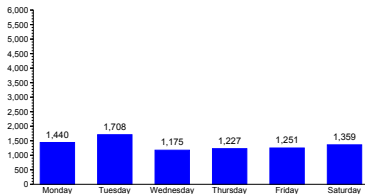
NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.

SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.



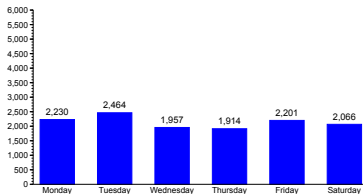
Median and Mean Volume of Loans by Weekday

Median Daily Volume of Discount Transactions in US\$



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas, Member Banks Collateral Notes Ledger.

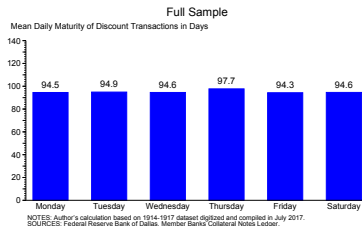
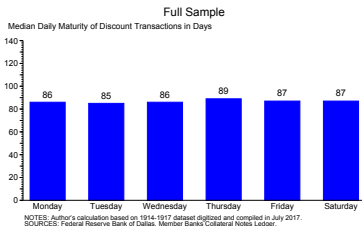
Mean Daily Volume of Discount Transactions in US\$



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas, Member Banks Collateral Notes Ledger.



Median and Mean Maturity of Loans by Weekday



Final Thought: Seasonality

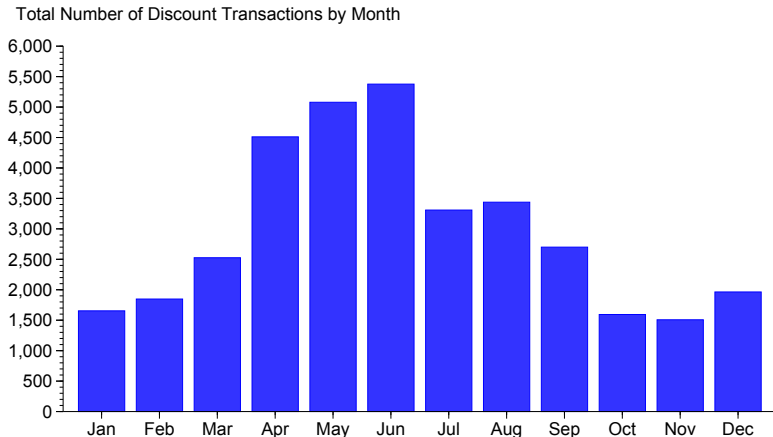
Banking panics typically in fall and spring – Texas is different it seems ...

What about seasonality?

- Total number peaks in April, May, and June
- Total volume cyclical less pronounced
- Mean and median loans with different intra-year monthly cyclical
 - ⇒ Small banks that take advantage of the “summer support”?



Total Loan Number by Month of Year

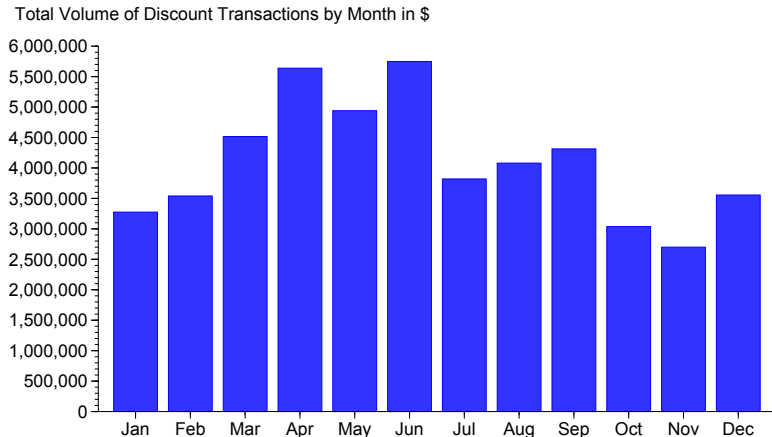


NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.

SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.



Total Loan Volume by Month of Year



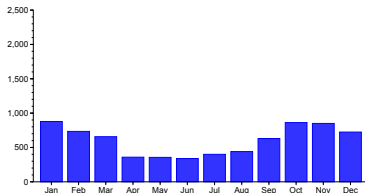
NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.

SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.



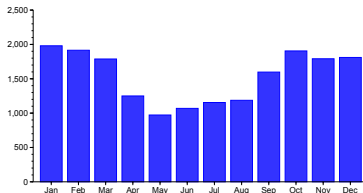
Median Versus Mean Loan Volume by Month of Year

Median Volume of Discount Transactions by Month in \$



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.

Mean Volume of Discount Transactions by Month in \$

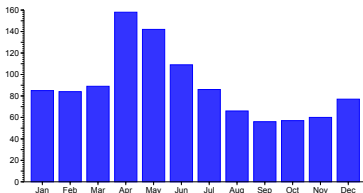


NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas. Member Banks Collateral Notes Ledger.



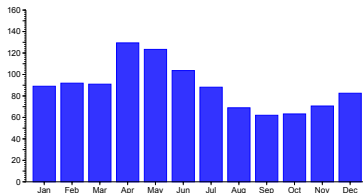
Median Versus Mean Maturity by Month of Year

Median Maturity of Discount Transactions by Month in Days



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas. Member Banks' Collateral Notes Ledger.

Mean Maturity of Discount Transactions by Month in Days



NOTES: Author's calculation based on 1914-1917 dataset digitized and compiled in July 2017.
SOURCES: Federal Reserve Bank of Dallas. Member Banks' Collateral Notes Ledger.



Larger Banks accessed the Discount Window Spatial Gravity Matters

- Mostly along railroad lines

Network Structure

- Local Texas network become substantially more dense
- Discount banks increased their local networks by more

Balance Sheets

- Great loan ratio more likely do discount
- Diff-in-Diff suggests more loans as a share of total assets

Ex-Ante vs. Ex-Post Liquidity

- Ex-post liquidity insurance also played a role

Somewhat new view of seasonality

- Spring loan seasonality would be masked by aggregate data



Exploring the 1914 – 1917 Discount Ledger of the Federal Reserve Bank of Dallas

Christoffer Koch[†] Patrick Van Horn[‡]

[†]Federal Reserve Bank of Dallas

[‡]Scripps College

– Workshop on Monetary and Financial History –

Federal Reserve Bank of Cleveland

May 14-15, 2018

The views expressed in this presentation are those of the authors and are not necessarily reflective of views at the Federal Reserve Bank of Dallas or the Federal Reserve System.
Any errors or omissions are the sole responsibility of the authors.

