

# Analysis of the relation between demand deposits and risks in the American banking sector

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MÉTODOS COMPUTACIONALES PARA POLÍTICAS PÚBLICAS  
UROSARIO



# Motivation

- Financial institutions transform assets.
- The illiquid loans of banks are financed through the demand deposits of the uninformed public.
- Bank runs could have a fundamental cause, i.e., they could be caused by the bank asset quality.
- Is there a clear relation between the risks and the level of deposits in the United States?

# Data

- **USBankLocations.com** makes public a compilation of statistics about US banks. USBankLocations.com obtain the data from government agencies under the Freedom of Information Act.
- **Demand deposits**
- **Tier 1 capital ratio (the more the better)**: is the comparison between a banking firm's core equity capital and its total risk-weighted assets. A firm's core equity capital is the measure of a bank's financial strength. A firm's risk-weighted assets include all assets that the firm holds that are systematically weighted for credit risk.

# Methods

Let's go to Github

# Findings

Las estadísticas descriptivas de la base completa son:

	Riesgo	Depositos	LogDepositos
count	6058.000000	6058.000000	6058.000000
mean	25.402773	260.465357	16.823795
std	465.535237	4658.603264	2.944915
min	1.594700	0.000000	-4.605170
25%	12.478850	12.457000	16.337793
50%	15.109700	25.842000	17.067512
75%	19.728750	55.820250	17.837647
max	36197.297300	258094.000000	26.276590

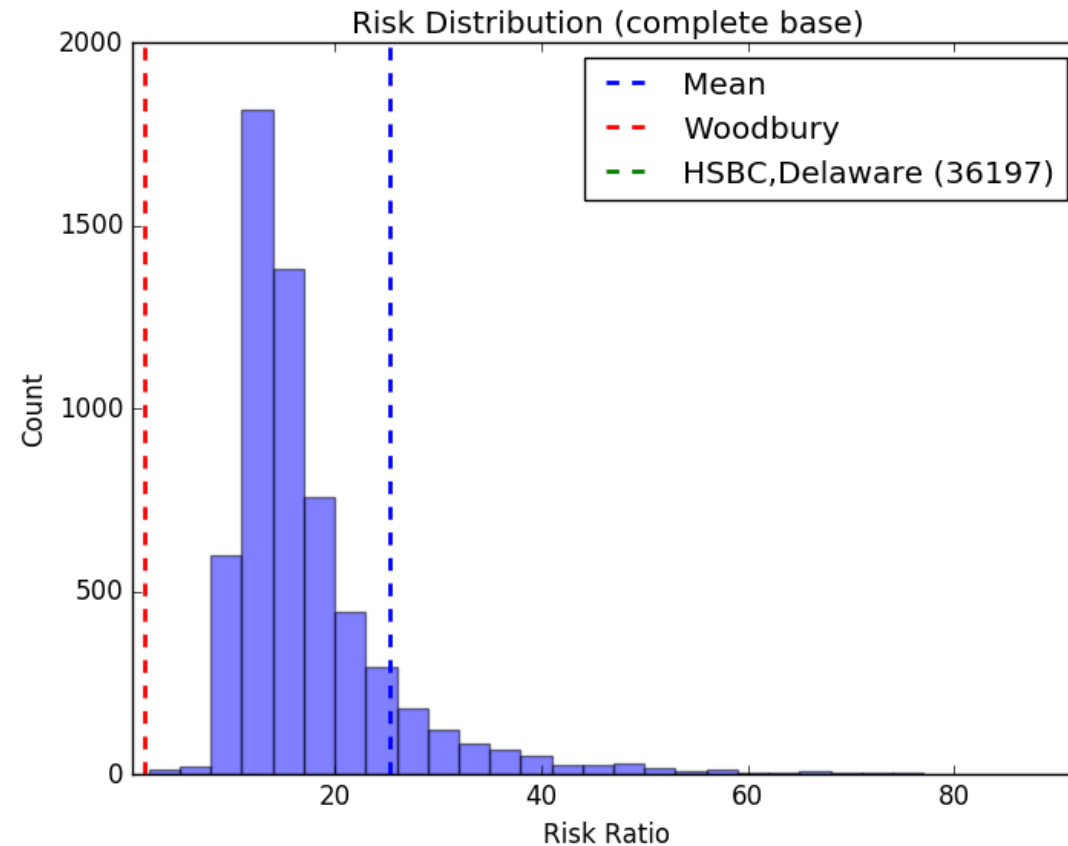
# Findings

Las estadísticas descriptivas de la base sin outlier son:

	Riesgo	Depositos	LogDepositos
count	6057.000000	6057.000000	6057.000000
mean	19.430857	217.897496	16.822234
std	25.922823	3275.228433	2.942652
min	1.594700	0.000000	-4.605170
25%	12.478500	12.457000	16.337793
50%	15.109400	25.839000	17.067396
75%	19.724400	55.815000	17.837553
max	868.623800	144521.000000	25.696691

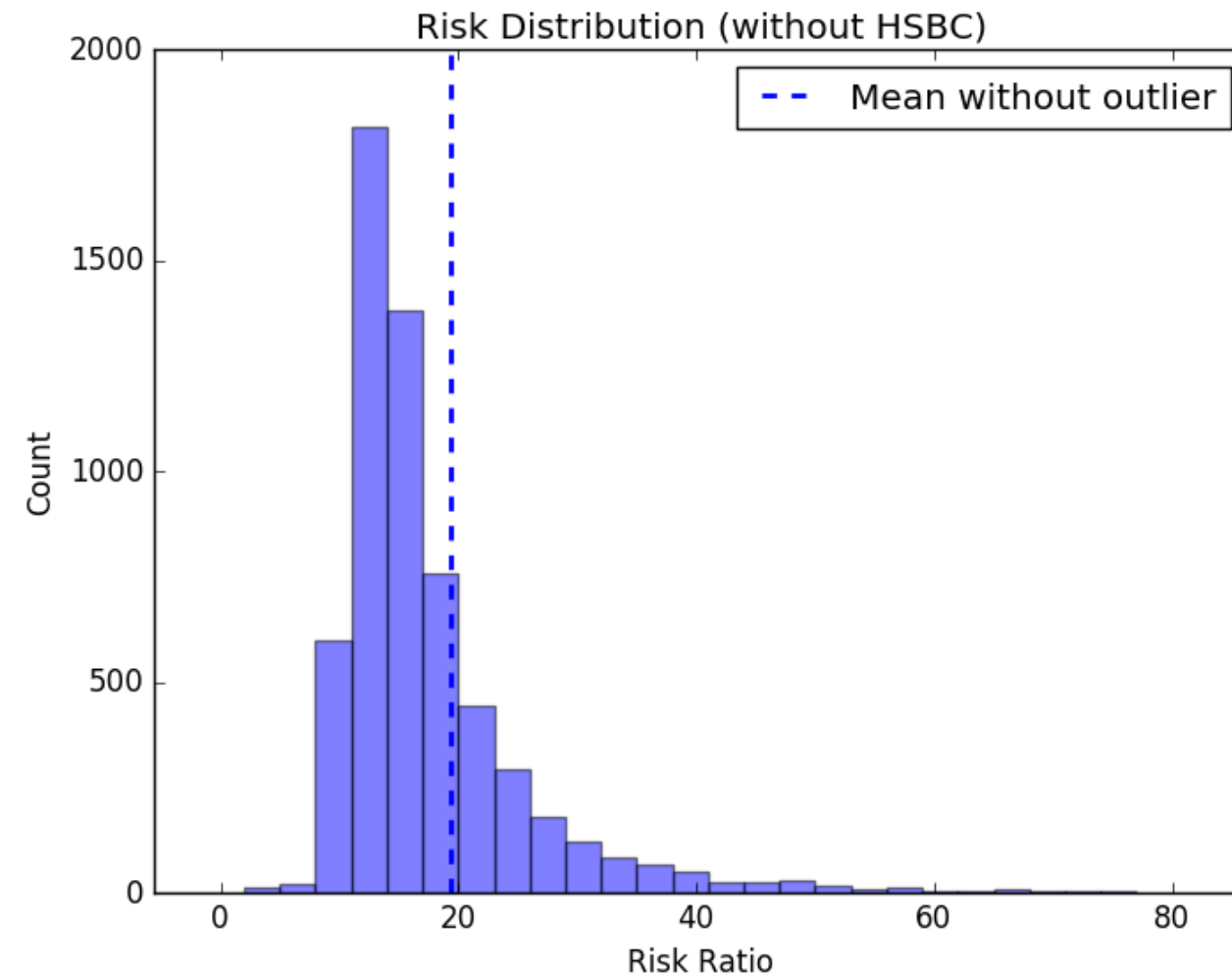
Basel III minimum: 6%

# What can we learn about risks in the US in 2016IIQ?

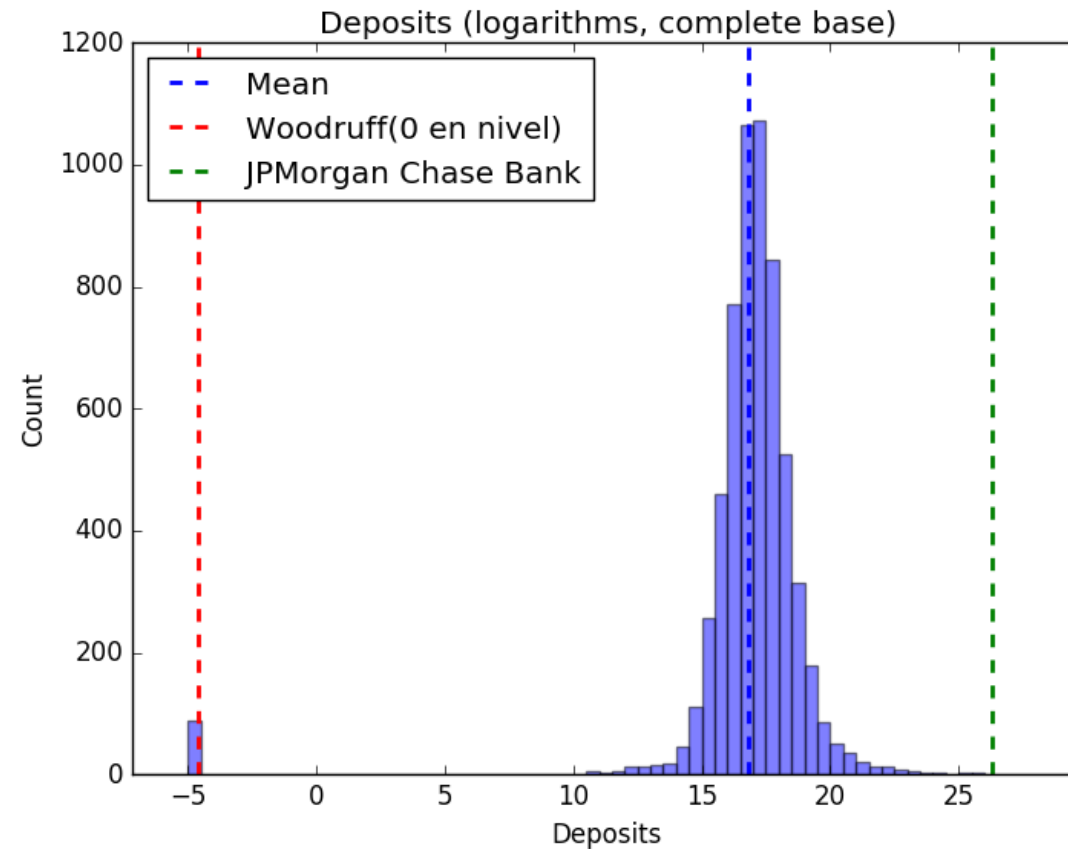




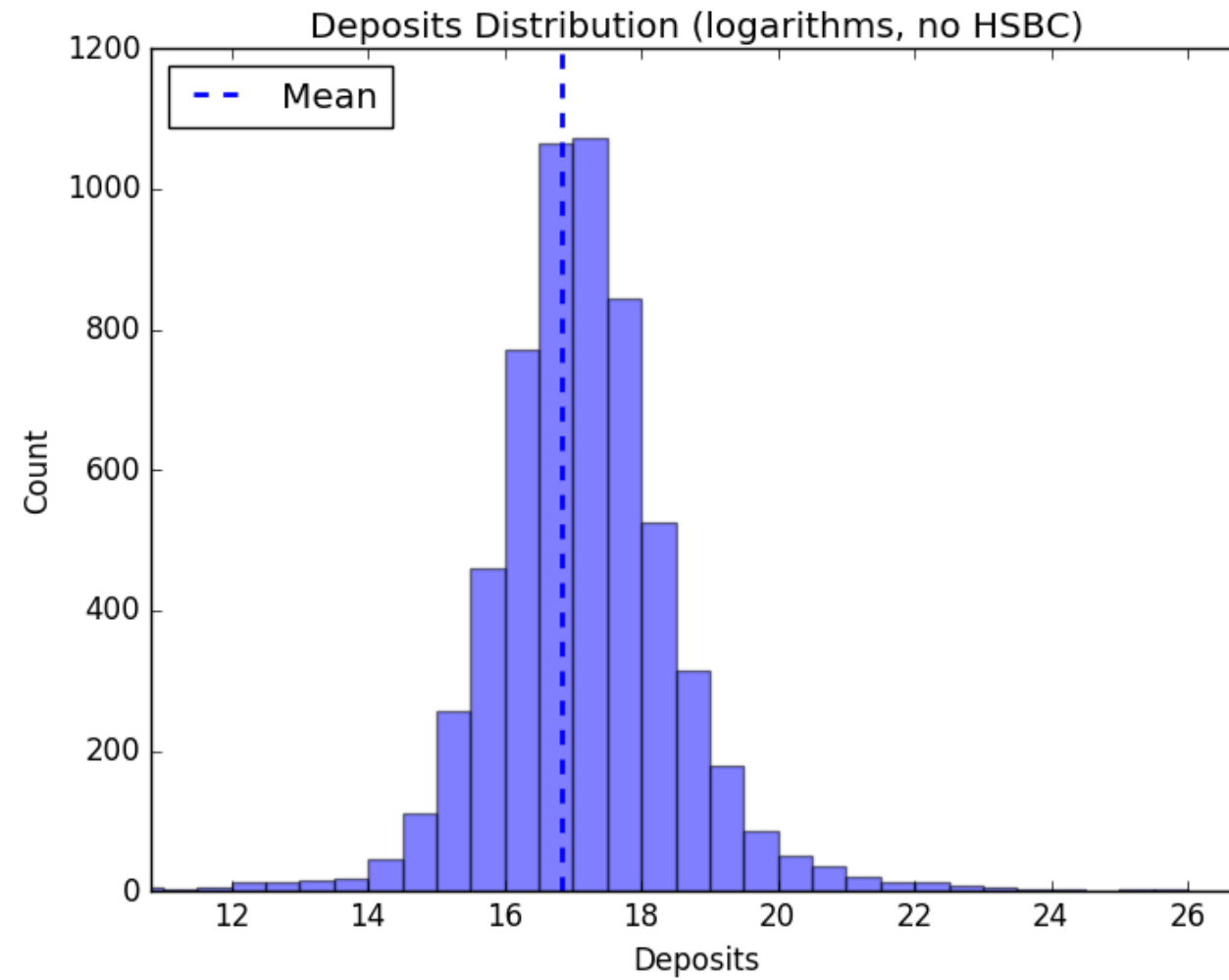
# Risks



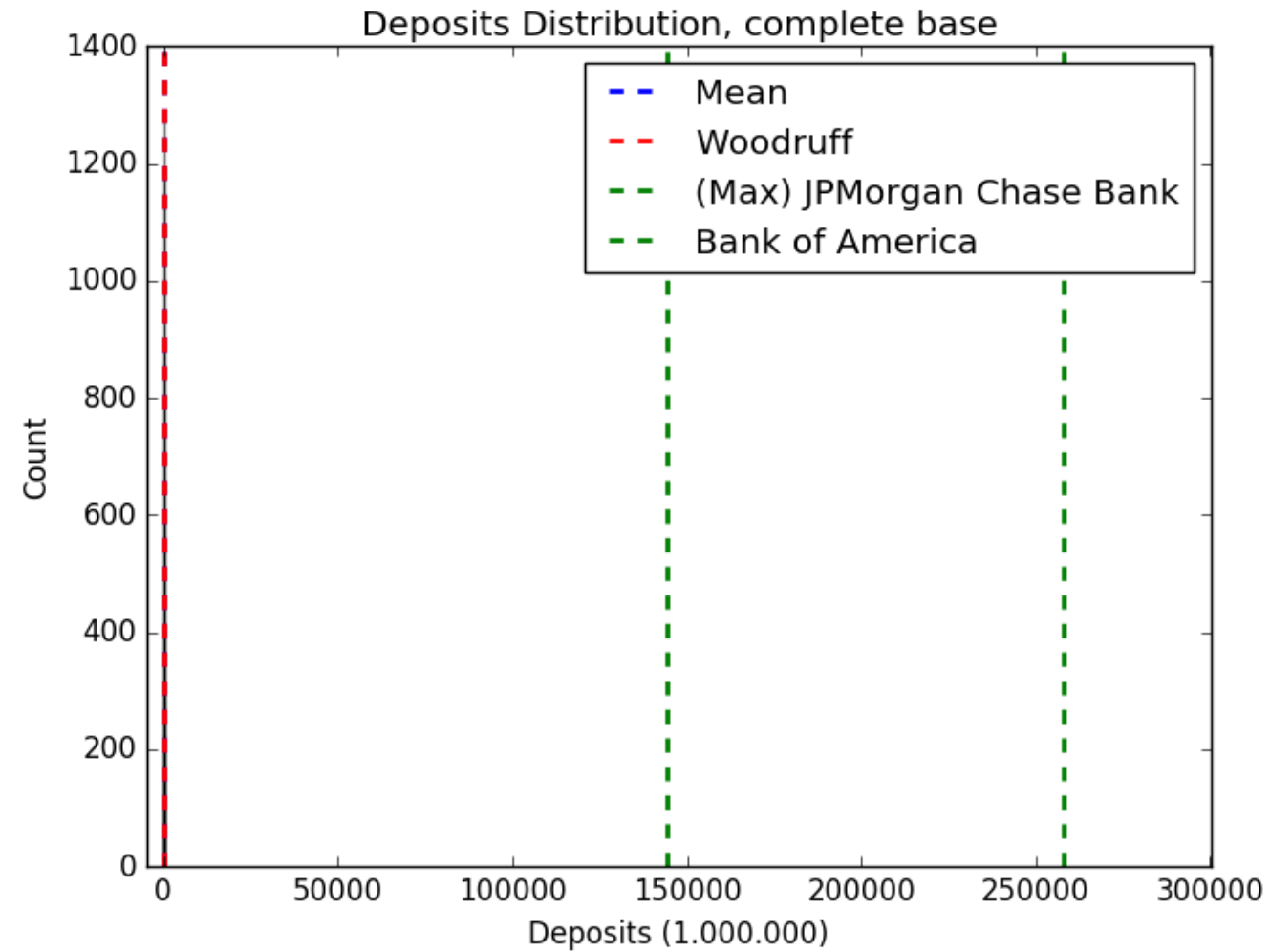
# What can we learn about deposits in the US, 2016IIQ?



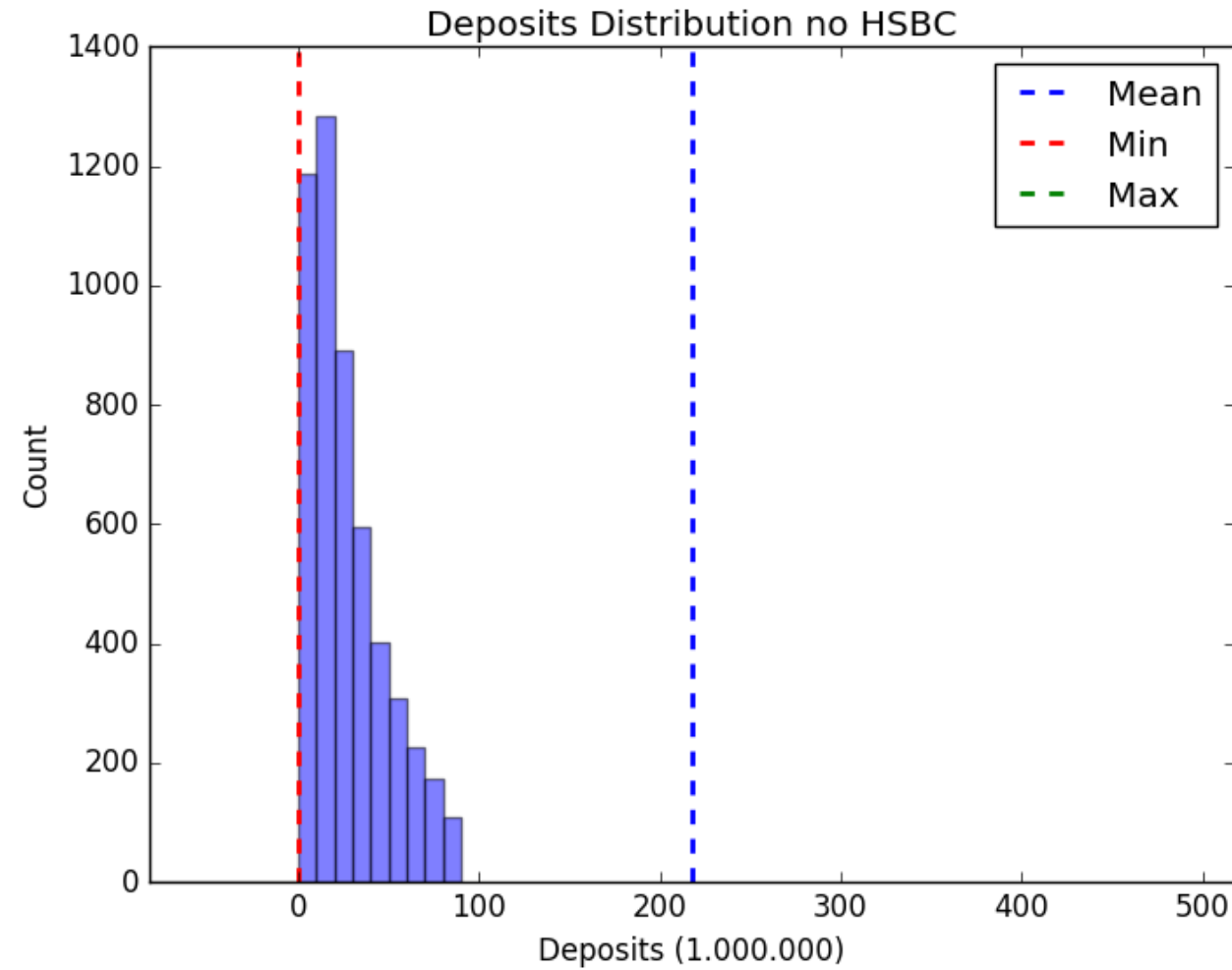
# Deposits



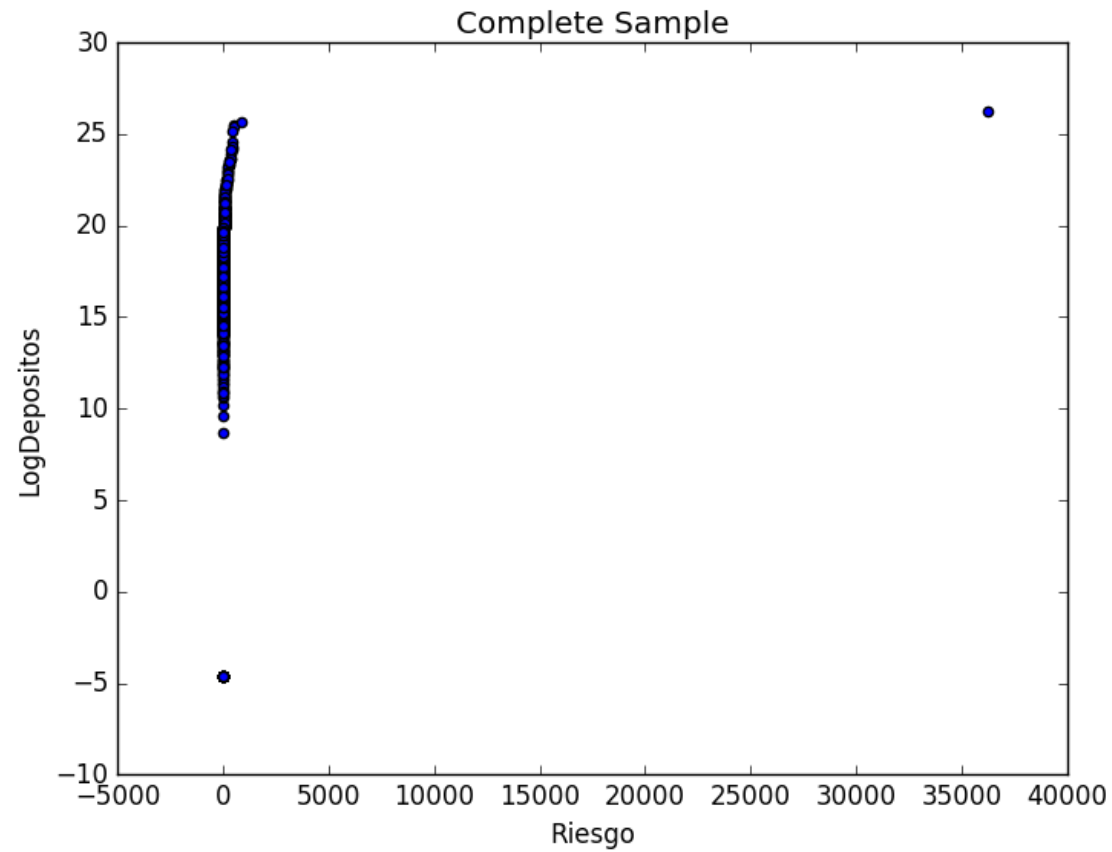
# Deposits

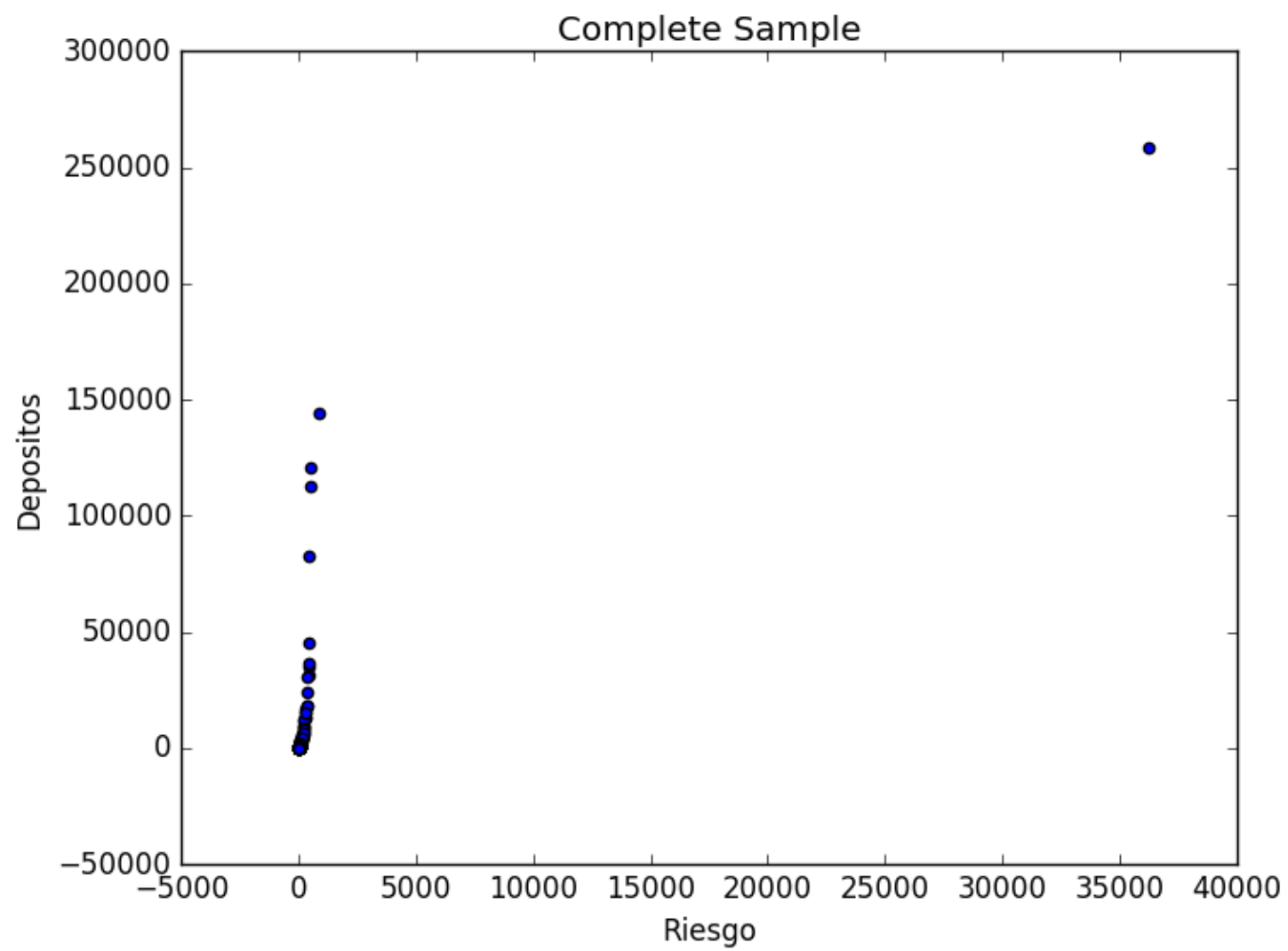


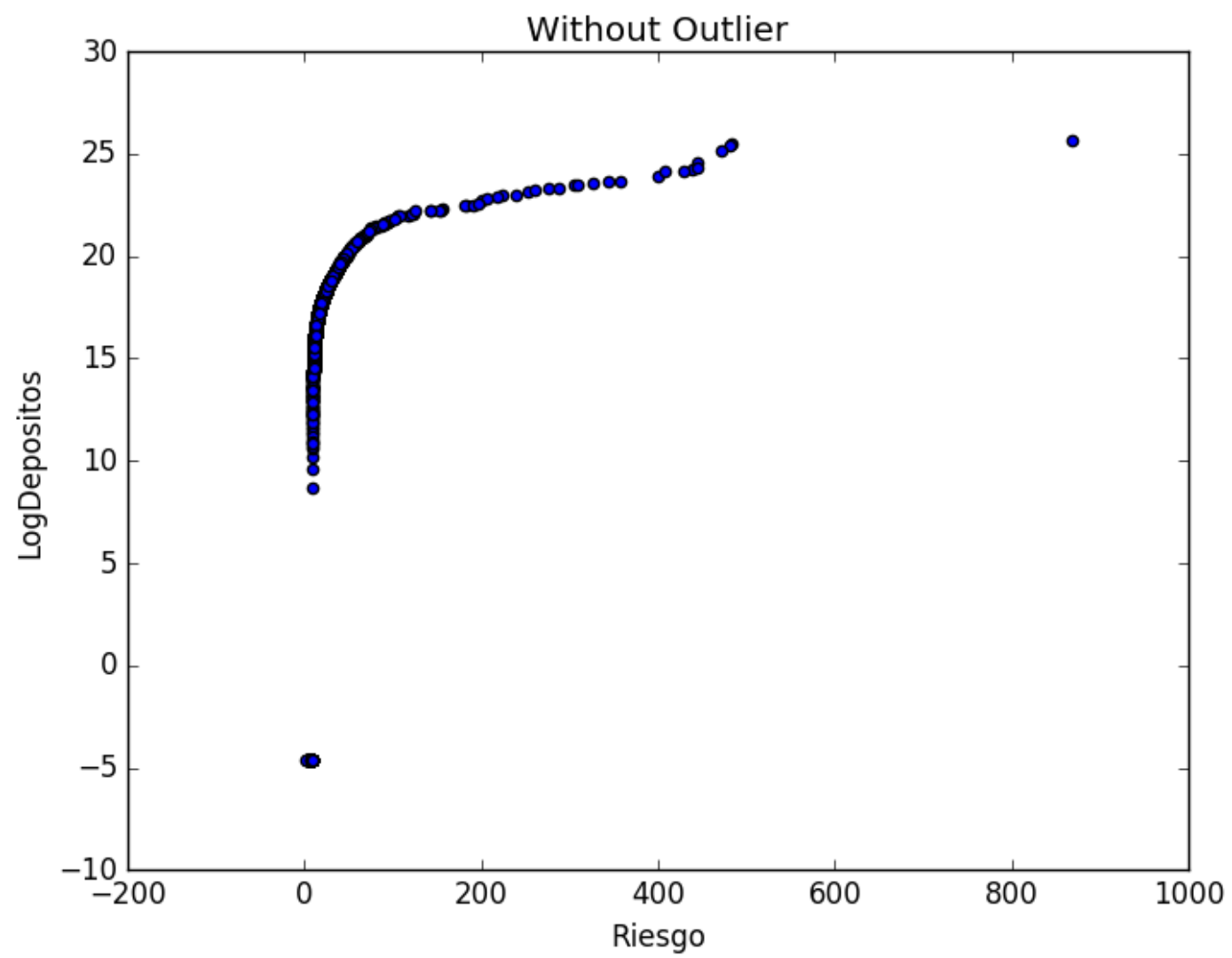
# Deposits



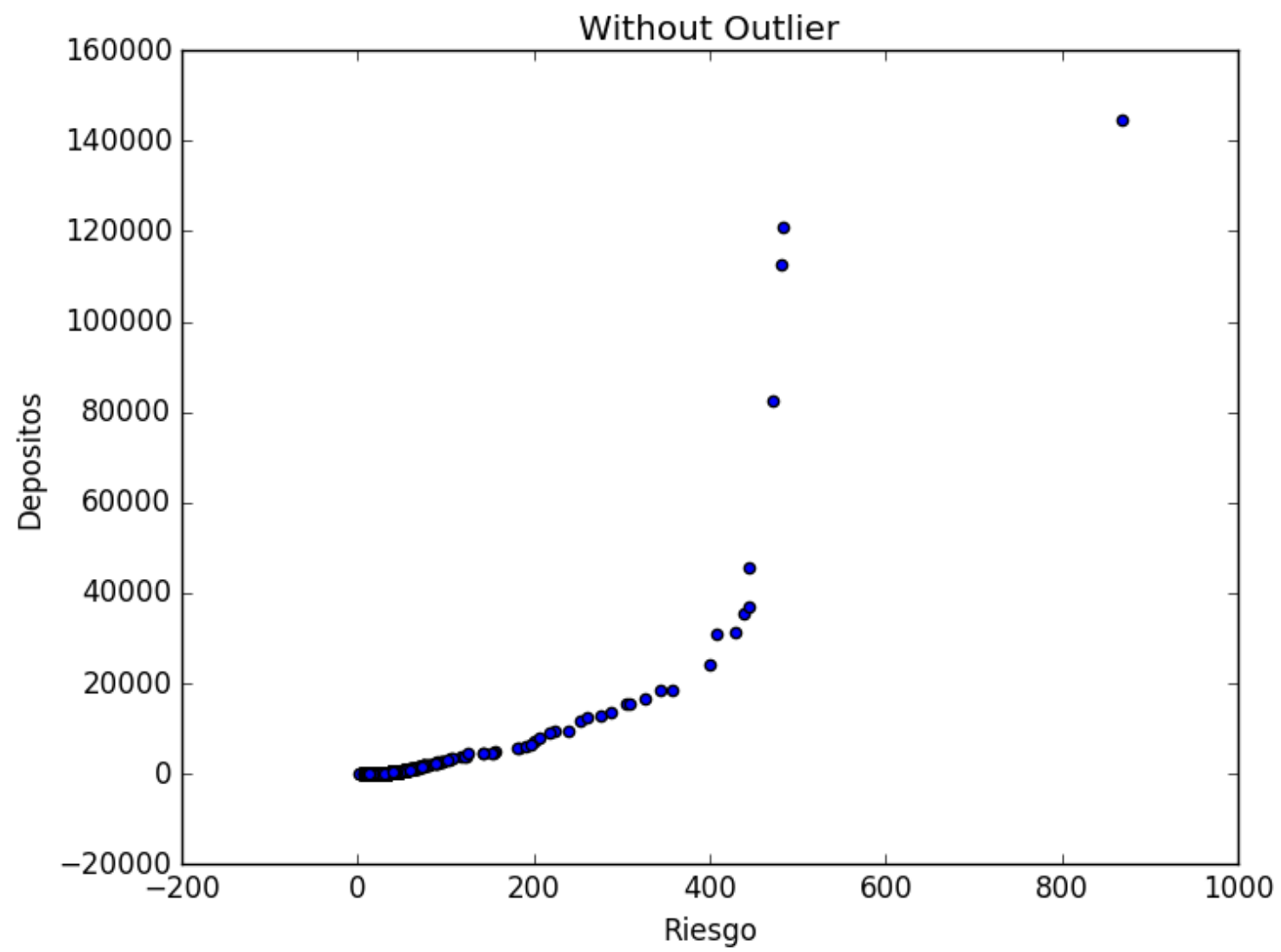
# Is there a clear relation?











# Regressions

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=====
                        OLS Regression Results
=====
Dep. Variable:          Depositos      R-squared:                0.550
Model:                  OLS            Adj. R-squared:           0.550
Method:                 Least Squares   F-statistic:             7413.
Date:                  Mon, 14 Nov 2016 Prob (F-statistic):       0.00
Time:                  17:55:39         Log-Likelihood:          -57343.
No. Observations:      6058            AIC:                    1.147e+05
Df Residuals:          6056            BIC:                    1.147e+05
Df Model:               1
Covariance Type:       nonrobust
=====

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	coef	std err	t	P> t	[95.0% Conf. Int.]	
Intercept	71.8779	40.197	1.788	0.074	-6.923	150.679
Riesgo	7.4239	0.086	86.098	0.000	7.255	7.593

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Omnibus:                16507.981      Durbin-Watson:           1.994
Prob(Omnibus):          0.000          Jarque-Bera (JB):        413211942.356
Skew:                   33.826          Prob(JB):                0.00
Kurtosis:               1280.672        Cond. No.                467.
=====

```

# Regressions: 7.4 v.s 102.56

## OLS Regression Results

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=====
Dep. Variable:          Depositos      R-squared:                0.659
Model:                  OLS            Adj. R-squared:          0.659
Method:                 Least Squares   F-statistic:              1.170e+04
Date:                   Mon, 14 Nov 2016 Prob (F-statistic):       0.00
Time:                   17:55:42        Log-Likelihood:           -54362.
No. Observations:      6057            AIC:                     1.087e+05
Df Residuals:          6055            BIC:                     1.087e+05
Df Model:               1
Covariance Type:        nonrobust
=====
```

	coef	std err	t	P> t	[95.0% Conf. Int.]	
Intercept	-1775.1024	30.714	-57.795	0.000	-1835.312	-1714.893
Riesgo	102.5688	0.948	108.184	0.000	100.710	104.427

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Omnibus:                13365.358      Durbin-Watson:            2.014
Prob(Omnibus):          0.000          Jarque-Bera (JB):         135899781.270
Skew:                   19.864          Prob(JB):                 0.00
Kurtosis:               735.738          Cond. No.                 40.5
=====
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# Conclusions

- There are undercapitalized financial institutions in the US since their Tier 1 capital ratio is under 6%, e.g. Woodbury.
- But most of them are well-capitalized (75% over 12%)
- The distribution of risk among Banks is skewed.
- Based on their deposits, there are huge Banks compared to other ones in the us, e.g. JPMorgan and Bank of America.
- The distribution of deposits among Banks in the US highly skewed.
- There is a clear positive relation between the level of deposits and the financial health of US financial institutions.
- A linear regression fits well although a quadratic function would do better.
- It is not possible to establish yet any causal relationship between these two variables.

Gracias