

# Unraveling Market Dynamics - Volatility Before and After GLBA

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## Question

Did the Gramm-Leach-Bliley Act (Repeal of Glass-Steagall) in 1999 contribute to increased volatility in debt and equity markets?

- Understanding the effects of financial regulation is crucial for policymakers, investors, and the general public.
- The GLBA marked a significant shift in financial regulation, allowing for greater integration between commercial banking, investment banking, and insurance activities.
- By investigating changes in market volatility before and after the GLBA, we gain insights into the broader impacts of financial deregulation on market stability and risk.
- Findings from this research can inform future regulatory decisions and help stakeholders better navigate financial markets in periods of regulatory change.

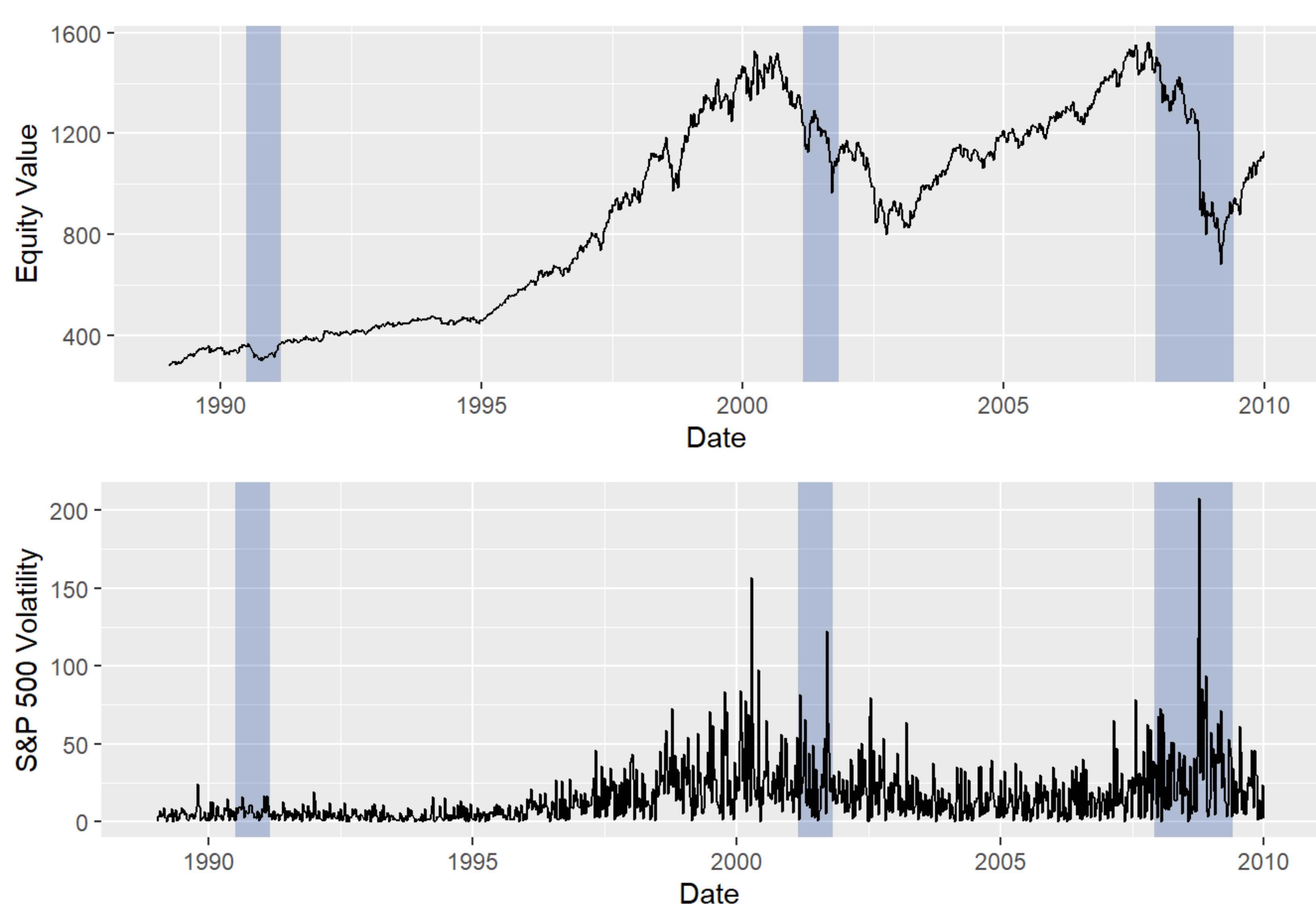
## Methods

- An auto regressive integrated moving average (ARIMA) model is employed to estimate the impact of the Gramm-Leach-Bliley Act (GLBA) on market volatility
- OLS regression is used to measure the effect of debt, deposits and a GLBA dummy variable on volatility

$$\text{SPX Volatility}_t = 5.775 + 12.347 * \text{GLBA}_t + 0.041 * \log(\text{Debt}_t) + 1.812 * \log(\text{Consumer}_t) + \epsilon_t$$

- The data set was divided into two periods: ten years before GLBA enactment (1989-1999) labeled as “1”, and ten years after (1999-2009) labeled as “2”. Using this binary marker alongside other variables in the ARIMA model, changes in market volatility pre and post-GLBA were assessed.
- This approach enables a statistical examination of volatility fluctuations over time, aiding in the evaluation of GLBA’s impact on market stability. Comparing volatility patterns before and after GLBA enactment helps gauge the effectiveness of the regulatory changes introduced.

## Visualizations



Data source: FRED

Figure 1: Equity (top) and S&P 500 Volatility (bottom).

Equity (top): This plot shows the historical equity values of the S&P 500 index from 1989 to 2009. The x-axis denotes the date, and the y-axis represents the equity value. Shaded areas indicate recessions, offering insights into equity performance during economic downturns.

S&P 500 Volatility (bottom): This plot depicts the volatility of the S&P 500 index during the same period. The x-axis displays the date, and the y-axis represents index volatility. Similar

to the first plot, shaded regions highlight recession periods. This visualization helps understand the S&P 500 index’s volatility fluctuations over time.

## Results

- Regression analysis incorporating the S&P 500 index as a measure of equity market performance indicates a significant positive effect of the GLBA marker on volatility ( $P < 0.001$ ), suggesting increased volatility post-enactment.
- However, the impact of consumer deposits and debt levels on volatility is not statistically significant ( $p > 0.05$ ).
- This implies that while the GLBA influenced market volatility, changes in consumer deposits and debt levels did not significantly impact the studied period.
- These findings highlight the significance of regulatory changes in shaping market dynamics, with potential implications for investors and policymakers.

### OLS Regression Model Estimates

	Dependent variable:
	SPX_vol
GLBA	12.347*** (1.495)
Log(Debt)	0.041 (0.731)
Log(Deposits)	1.812* (0.946)
Constant	5.775*** (2.024)
Observations	860
R <sup>2</sup>	0.137
Adjusted R <sup>2</sup>	0.134
Residual Std. Error	17.502 (df = 856)
F Statistic	45.313*** (df = 3; 856)
Note:	$p < 0.1$ ; $p < 0.05$ ; $p < 0.01$

## Conclusion

The findings suggest that the enactment of the GLBA in 1999 significantly impacted market volatility, particularly in the equity market as indicated by the S&P 500 index. While consumer deposits and debt levels did not significantly influence volatility, the regulatory changes introduced by the GLBA played a notable role in shaping market dynamics. These results underscore the importance of regulatory interventions in financial markets and highlight the need for further research to understand the broader implications of such regulatory reforms.

## References

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