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Article

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BANKING & FINANCE | RESEARCH ARTICLE

The check clearing for the 21st century act and bank stock returns

Kenneth A. Tah^{1*}, James R. Griggers¹ and Lee C. Greenberger¹

Abstract: The purpose of this paper is to examine the wealth effect of the Check Clearing for the 21st Century Act, also known as Check 21, on bank stock return. We use event study analysis on thirty-four U.S. bank stocks listed on the New York Stock Exchange. Our analysis reveals that Check 21 is associated with positive abnormal return. Overall, our results suggest that investors are optimistic about the future performance of U.S. banks with the introduction of Check 21.

Subjects: Finance; Banking; Innovation Management

Keywords: Check 21; wealth effect; US banks; event study

1. Introduction

In the early months of the 21st century, all checks deposited with banks were subsequently transported to the Federal Reserve for processing. This was a long and arduous process for banks, taking several days to retrieve and transport checks from remote locations to the few Federal Reserve offices across the United States. Following the 9/11 terrorist attacks, all air travel in the United States was suspended for two days, crippling the financial system. Because checks could not be flown across the country during this period, the entire financial system was disrupted. In order to ensure the integrity of the financial system in times of crisis, the Federal Reserve Board of Governors, along with several consumer groups and the banking industry, sought a bill to streamline the process and allow for innovation that would benefit consumers, banks, and the Federal Reserve. The Check Clearing for the 21st Century Act, also known as Check 21, was passed

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PUBLIC INTEREST STATEMENT

Following the 9/11 terrorist attacks, all air travel in the United States was suspended for two days and the entire financial system was disrupted because checks deposited with banks could not be flown across the country to the Federal Reserve for processing. The Check Clearing for the 21st Century Act, also known as Check 21, was passed into law on 28 October 2003. The bill's express purpose was to facilitate check truncation by authorizing substitute checks, to foster innovation in the check collection system without mandating receipt of checks deposited in electronic form, and to improve the overall efficiency of the nation's payments system. We examine the wealth effect of Check 21 on bank stock return. Our analysis reveals that Check 21 is associated with positive abnormal returns. This suggests that investors are optimistic about the future performance of U.S. banks with the introduction of Check 21.

into law on 28 October 2003. The law was supported by the Federal Reserve Board of Governors, consumer groups, and almost all U.S. legislators. The bill's express purpose is to facilitate check truncation by authorizing substitute checks, to foster innovation in the check collection system without mandating receipt of checks in electronic form, and to improve the overall efficiency of the nation's payments system (U.S. Congress, 2003). The law went into effect on 28 October 2004, a year following its passage.

Check 21 brings advantages to financial institutions and their customers. Banks no longer have to transport physical checks from ATMs and branches across the nation to the Federal Reserve. New ATMs simply scan checks rather than require regular check collection. Submissions to the Federal Reserve are completed via electronic imaging. Electronic imaging also enables the banking system to operate more effectively and efficiently, reducing the amount of float time and allowing customers to look at their accounts online with a near real-time basis for funds. Electronic banking has reduced costs, guaranteed the deposit of funds, and limited the risk of theft for individual recipients' checks as well as fraud and other banking risk associated with paper checks (Burnie et al., 2004).

A couple of externalities may abound with the passage of Check 21. The implementation of Check 21 has cut fees for expedited services through standardizing quick turn-arounds (Humphrey, 2014). While decreased float is an advantage from the bank's perspective, decreased float may disadvantage consumers who could previously satisfy payment with checks before receiving the funds into their account for clearance. Therefore, banks may see more insufficient funds checks due to this decreased float. The first bank to truncate the check also becomes liable for warranties and a sufficient image (Burnie et al., 2004). From the perspective of a business, fake and counterfeit checks are much harder to identify when electronically deposited rather than physically deposited. The implementation of new technology also adversely affects some consumers, especially those unwilling or unable to accept the use of image replacement documents (IRDs) or substitute checks. This is prevalent in the elderly, but can also be seen in other consumer groups as well. Another possible disadvantage of the new electronic system is found in new privacy concerns as account information necessarily becomes more widely available across the board (Burnie et al., 2004). Other disadvantages stem from the lack of clarity in the law. The law leaves several major decisions to the Federal Reserve Board of Governors and other regulating bodies for implementing and sustaining policies. Specifically, Check 21 does not state the amount of time necessary for banks or individuals to hold the original paper checks after electronically deposited (Burnie et al., 2004). This lack of guidance creates uncertainty, as well as necessitates a new system for holding the original checks and disposing of them in an appropriate manner.

Against this background, this article investigates the effect of the Check 21 Act on bank stock return. We posit that to the extent that the market is happy with Check 21, bank stock will experience an upward trend that should take place around the day of Check 21's enactment. We use event study methodology to analyze both the mean-adjusted and the market-based equity values. Our article contributes to related research that analyzes regulatory announcement effects on the stock market by considering Check 21, a regulatory enactment that has yet to be analyzed.

The remainder of this article is structured as follows. In Section 2, we present a brief literature review. Section 3 comprises a presentation of the research methodology. In Section 4, we present our empirical results. Section 5 offers our conclusions.

2. Literature review

Kobrin (1997) indicates that the introduction of electronic-money could make monetary control less effective. This e-currency can make a national market almost irrelevant as people can spend in whichever market they desire. It is also extremely hard for any government to control this type of electronic-money. Kobrin (1997) also anticipates an increase in cybercrime due to the anonymity of the transactions for national income data. Amedu (2005) reports some electronic banking

drawbacks. Some customers' attitude towards online banking remains negative due to cybercrime fears. Cohen (2001) argues that the introduction of electronic currency might reduce monetary autonomy (the ability of the Fed to influence output and price).

Humphrey and Hunt (2013) estimate the cost savings associated with Check 21. They document that the Federal Reserve's per-item check-processing costs drop by over 70%, thereby reducing the overall U.S. payment system costs by 1.16 USDB in 2010. Humphrey (2014) illustrates the effect of Check 21 on economic activity, documenting efficiency gains of over 3 USDB in 2010.

Santomero (2004) notes that Check 21 is expected to save banks about 2 USDB a year in check processing costs. It also cuts the risk of checks being lost in transportation significantly, while also eliminating the risk of high float similar to the 47 USDB float that was created as a result of the 9/11 attacks. The main issue at the time is the transition banks have to make for substitute checking, as well as how to familiarize their customers with the new processes.

Fredrick (2012) and Ojokuku and Sajuyigbe (2012) state that electronic banking improves the growth of the banking industry, enhances bank-customer relations, improves customer satisfaction, and facilitates banking transactions. This is caused by the improvements of HR that the Nigerian banking industry makes when adopting electronic bank products, and having to build stronger security and make the access of information easier between bank tellers and customers. Information is also presented in a convenient and easy to understand manner due to the interface provided by electronic banking.

3. Data and methodology

The data used in this study are drawn from Yahoo Finance and comprise daily stock prices for thirty-four U.S. banks that are listed on the New York Stock Exchange. From the three hundred and thirty seven banks trading on the New York Stock Exchange, each of these thirty-four is randomly selected using three underlying criteria: (1) is publicly traded on the New York Stock Exchange during the period in question, (2) is classified under the banks subcategory by the GICS, and (3) is a U.S.-based company. These three aforementioned criteria make the banks in question prime candidates for an examination of stock return shifts associated with changes to the legal and regulatory framework of the financial industry during the period in question. The stocks are a blend of large-cap and mid-cap stocks. These stocks are representative of those most procedurally affected by Check 21. Under the Global Industry Classification Standard (GICS), twenty-seven of our selected banks are listed as regional, four as diversified, two as asset management, and one as a credit service. The period of analysis, which spans from 23 December 2002 to 5 November 2003, straddles the 28 October 2003 signing of the Check Clearing for the 21st Century Act. We calculate expected return over the estimation window -200 to -07 and abnormal return of the individual stocks over the event with (-6, +6).

We calculate the simple net returns as:

$$R_{i,\tau} = \frac{P_{i,\tau}}{P_{i,\tau-1}} - 1 \quad (1)$$

To assess the impact of the signing into law of Check 21 on U.S. banks, it is crucial that we compute abnormal returns. Abnormal returns help to isolate the effect of the event from other general movements of the market. The abnormal return of company i and event date τ is defined as the difference of the realized return and the expected return given the absence of the events:

$$AR_{i,\tau} = R_{i,\tau} - E[R_{i,\tau} | \Omega_{i,\tau}] \quad (2)$$

The expected return is unconditional on the event but conditional on a separate information set. We use two functional forms in calculating the expected return—the constant mean returns and the market model. We cumulate abnormal returns across time to get the cumulative abnormal return:

$$CAR_i(\tau_1, \tau_2) = \sum_{t=\tau_1}^{\tau_2} AR_{i,t} \quad (3)$$

To account for event-induced volatility, we employ two parametric tests to determine the statistical significance of CAAR, namely the Patell (1976) and the Boehmer et al. (1991), respectively. To account for the proportional distribution of positive versus negative abnormal performance, we employ the non-parametric test of the generalized sign test (Cowan, 1992). Under the null hypothesis, the cumulative average abnormal return is equal to zero.

3.1. Mean-adjusted return

The mean adjusted model begins by computing constant mean return as:

$$R_{i,t} = \mu_i + \xi_{i,t} \text{ with } E[\xi_{i,t}] = 0 \wedge \text{VAR}[\xi_{i,t}] = \sigma_\xi^2 \quad (4)$$

The parameter μ_i is then calculated by the arithmetic average of estimation window returns:

$$\hat{\mu}_i = \frac{1}{M_i} \sum_{t=T_{0,i}+1}^{T_{1,i}} R_{i,t} \quad (5)$$

where M_i is the number of non-missing returns over the estimation window. The mean-adjusted return model is simple and restrictive compared to other models. Accordingly, we also apply the market model—known to be a more sophisticated model.

3.2. Market model

The market model assumes a constant and linear relation between individual asset returns and the return of a market index:

$$R_{i,t} = \alpha_i + \beta_i R_{M,t} + \varepsilon_{i,t} \text{ with } E[\varepsilon_{i,t}] = 0 \text{ and } \text{VAR}[\varepsilon_{i,t}] = \sigma_\varepsilon^2 \quad (6)$$

We estimate the model parameters by ordinary least squares regressions based on estimation-window observations.

4. Empirical evidence

4.1. Constant mean return model

Figure 1 depicts the CAAR estimates using the methodology of mean-adjusted returns around the event period (−10, +10) encompassing the signing into law of the Check Clearing for the 21st

Figure 1. CAARs for [−10, +10], mean-adjusted return model.

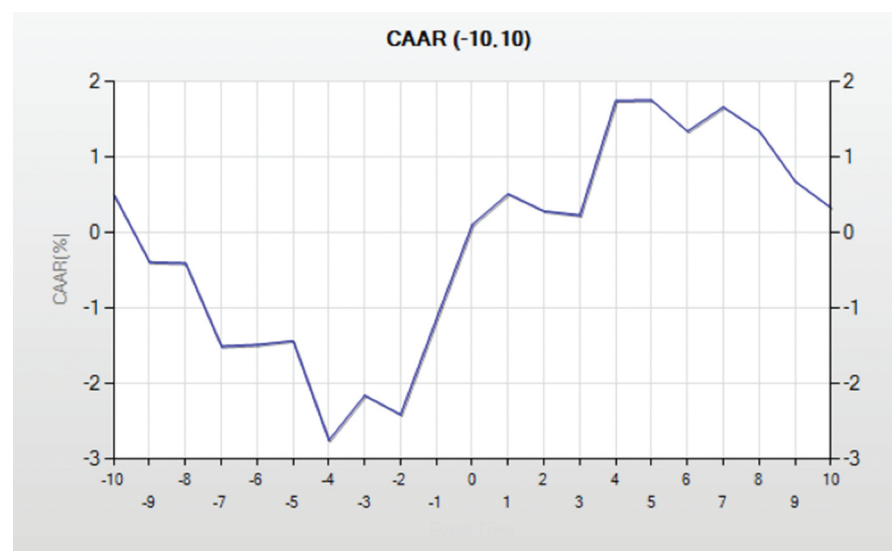


Table 1. The stock market reaction to the check clearing for the 21st century act (Mean return model)

Event window	CAAR	Patell z	p-value	Boehmer et al.	p-value	Generalized Sign Test	p-value
(-10, +10)	0.0034	0.6069	0.5439	0.6642	0.5065	0.3755	0.7073
(-8, +8)	0.0174	1.9641**	0.0495	1.8589*	0.0630	1.7475*	0.0805
(-5, +5)	0.0325	4.1722***	0.0000	4.2875***	0.0000	3.1195**	0.0018
(-3, +3)	0.0299	4.8714***	0.0000	4.7885***	0.0000	4.4915***	0.0000
(-1, +1)	0.0293	7.0512***	0.0000	4.6208***	0.0000	4.8345***	0.0000
(-5, -1)	0.0034	0.7070	0.4795	0.6029	0.5466	0.3755	0.7073
(+1, +5)	0.0165	3.2818***	0.0010	3.7722***	0.0002	3.4625***	0.0005
(+1, +10)	0.0023	0.7964	0.4258	1.0142	0.3105	1.4045	0.1602

CAAR denotes cumulative abnormal returns. ***, ** and * indicates the 1%, 5% and 10% significant level.

Century Act. Using the methodology of mean-adjusted returns, the figure reveals that U.S. banks gain value following the signing of Check 21. The impact seems to be most significant around the event window.

Table 1 presents CAAR estimates over varying event windows using the methodology of mean-adjusted returns. The CAAR for the U.S. banks on the post announcement's 20-day event window [-10, 10] and 16-day event window of [-8, +8] suggest a rise in stock return is insignificant and weakly significant respectively. We believe this is due in part to the limitation of the mean adjusted model and the fact that the under a longer event window other bank-related factors could crowd our results. The shorter event window is usually required to mitigate the impact of potentially confounding events which may affect the results of our analysis. The CAAR for the U.S. banks on the post announcement's 10-day event window [-5, 5] suggests a rise in stock return in the order of 3.25%. This rise in the market valuation of U.S. banks is statistically significant according to both Patell Z, Boehmer et al., and Generalized Sign Test statistics. This positive, statistically significant result remains true for 7-day and 3-day event windows of [-3, 3] and [-1, 1] respectively. The 7-day event window [-3, 3] suggests a rise in stock return in the order of 2.99%, and the 3-day event window [-1, 1] suggests a rise in stock return in the order of 2.93%—all statistically significant according to the Patell Z, Boehmer et al., and Generalized Sign Test statistics. However, there is no evidence of a rise in the bank market valuation in the event window prior to the signing Check 21 into law, as seen in the 5-day event window [-5, -1]. We interpret this finding to mean Check 21 is largely unanticipated by market participants. Also, there are statistically significant results for the event period [+1, +5] encompassing periods following the passage of Check 21.

4.2. Market model

Figure 2 reveals the CAAR estimates using the methodology of market risk-adjusted returns for U.S. banks during the event window (-10, +10) encompassing periods when Check 21 is signed into law. The figure confirms earlier results that the overall consequence of Check 21 on the U.S. bank market valuation is indeed an upward trend. Again, a careful inspection suggests that the upward trend is most significant around the event day.

Table 2 presents CAAR estimates over varying event windows using the market-model methodology. The CAAR for the U.S. banks on the 20-day event window [-10, +10] is insignificant. Again, larger event windows usually incorporate other events that could mitigate the potential impact of our event. The CAAR for the U.S. banks on the 16-day event window [-8, +8] shows a rise in stock return in the order of 2.21%. This rise in the market valuation of U.S. banks is statistically significant according to the Patell Z, Boehmer et al., and Generalized Sign Test statistics. This

Figure 2. CAARs for [-10, +10], risk-adjusted return model.

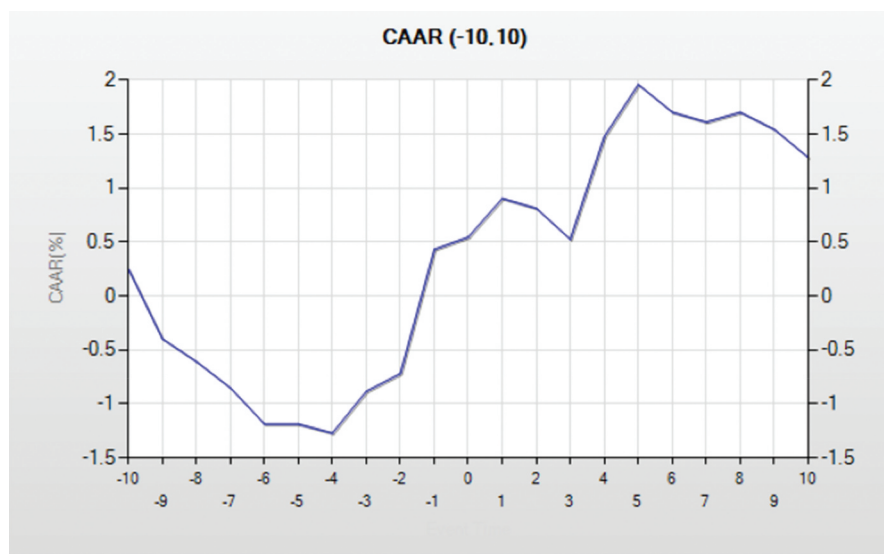


Table 2. The stock market reaction to the check clearing for the 21st century act

Event window	CAAR	Patell z	p-value	Boehmer et al.	p-value	Generalized Sign Test	p-value
(-10, +10)	0.0128	2.2535**	0.0242	1.7185*	0.0857	1.7928*	0.0730
(-8, +8)	0.0210	3.4307***	0.0006	2.2371**	0.0253	2.4788**	0.0132
(-5, +5)	0.0315	5.5685***	0.0000	3.8428***	0.0001	3.1649***	0.0016
(-3, +3)	0.0180	4.1363***	0.0000	2.7860**	0.0053	3.5079***	0.0005
(-1, +1)	0.0162	4.9941***	0.0000	2.1347**	0.0328	3.8509***	0.0001
(-5, -1)	0.0162	4.1967***	0.0000	2.3197**	0.0204	1.7928*	0.0730
(+1, +5)	0.0142	4.0074***	0.0001	3.4986***	0.0005	3.5079***	0.0005
(+1, +10)	0.0074	2.1836**	0.0290	2.1885**	0.0286	2.4788**	0.0132

CAAR denotes cumulative abnormal returns. ***, ** and * indicates 1%, 5% and 10% significant level respectfully.

positive, statistically significant result remains true for 10-day, 7-day and 3-day event windows of [-5, +5], [-3, +3] and [-1, +1], respectively. The CAAR for the U.S. banks on the 10-day event window [-5, 5] shows a rise in stock return in the order of 3.15%. This rise in the market valuation of U.S. banks is statistically significant according to the Patell Z, Boehmer et al., and Generalized Sign Test statistics. The 7-day event window [-3, +3] suggests a rise in stock return in the order of 1.80%, and the 3-day event window [-1, +1] suggests a rise in stock return in the order of 1.62%, all statistically significant according to the Patell Z, Boehmer et al., and Generalized Sign Test statistics. There is evidence of a rise in the bank market valuation in the event window prior to Check 21's passage as seen in the 5-day event window [-5, -1]. We interpret this finding to mean that the news of Check 21 was already in the market prior to its signing into law. There are also statistically significant results for the event periods [+1, +5] and [+1, +10] post-Check 21. Overall, Table 2 presents results with similar conclusions to Table 1. U.S. bank returns react positively to the signing into law Check 21. Table 2 additionally shows that the signing was anticipated by the market participants and market reaction persisted.

5. Conclusions

This study examines the effect of the Check Clearing for the 21st Century Act, also known as Check 21, on the valuation of U.S. banks using the event study methodology. Our results reveal that

U.S. bank stocks reacted to Check 21 in a positive manner. Our study reveals that returns of U.S. banks are abnormally high for the pre-event-day window, suggesting an anticipation effect. Returns of U.S. banks remain abnormally high during the event-day windows. The positive market reaction is consistent with both mean-adjusted returns and the market-model methodologies and with both parametric and non-parametric models.

The Check Clearing for the 21st Century Act leads to positive abnormal returns for banks. Investors believe Check 21 will decrease cost and increase efficiency in transactions associated with the banks. Since banks no longer are required to ship physical checks to the Federal Reserve and can send electronic copy substitutes, transportation costs will drastically reduce, float is reduced to a zero-sum gain for all parties involved, and turnaround time is cut significantly. Investors seem to be confident that the implementation of electronic copies will cause an intentional and measured shift to electronic banking to keep costs low while providing customers with quicker access to funds.

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References

- Amedu, U. M. (2005). Domestic electronic payment in Nigeria: The challenges of Central Bank of Nigeria. *Bullion*, 29(1), 21–33. <http://library.cbn.gov.ng:8092/jspui/handle/123456789/15>
- Boehmer, E., Musumeci, J., & Poulsen, A. (1991). Event-study methodology under conditions of event-induced variance. *Journal of Financial Economics*, 30(2), 253–272. [https://doi.org/10.1016/0304-405X\(91\)90032-F](https://doi.org/10.1016/0304-405X(91)90032-F)
- Burnie, D., Hurtt, D., & Langsam, S. (2004). Twenty-first-century check clearing: Are you ready? *Journal of Corporate Accounting & Finance*, 16(1), 21–26. <https://doi.org/10.1002/jcaf.20067>
- Cohen, B. J. (2001). Electronic money: New day or false dawn? *International Political Economy*, 8(2), 197–225. <https://doi.org/10.1080/09692290010033376>
- Cowan, A. (1992). Non-parametric event study tests. *Review of Quantitative Finance and Accounting*, 2(4), 343–358. <https://doi.org/10.1007/BF00939016>
- Fredrick, A. (2012). The impact of electronic banking transaction in the banking industry: The case of ADB, SG, SSB and Barclays Bank branches in the eastern region. CEMBA Thesis, Kwame Nkrumah University of Science and Technology, Ghana. Retrieved from <http://ir.knust.edu.gh/bitstream/123456789/4802/1/Anaafi%20Frederick.pdf>
- Humphrey, D. B. (2014). Benefits from collecting checks electronically. *American Economist*, 59(2), 128–133. <https://doi.org/10.1177/056943451405900203>
- Humphrey, D. B., & Hunt, R. (2013). Cost savings from check 21 electronic payment legislation. *Journal of Money, Credit, and Banking*, 45(7), 1415–1429. <https://doi.org/10.1111/jmcb.12057>
- Kobrin, S. J. (1997). Electronic cash and the end of national markets. *Foreign Policy*, 107(Summer 1997). <https://magazine.wharton.upenn.edu/issues/summer-1997/electronic-cash-and-the-end-of-national-markets/>
- Ojokuku, R. M., & Sajuyigbe, A. S. (2012). The impact of electronic banking on human resource performance in the Nigerian banking industry. *International Journal of Economic Development Research and Investment*, 3(2), 61–69. Retrieved from http://www.icidr.org/ijedri_vol3no2_content.php
- Patell, J. (1976). Corporate forecasts of earnings per share and stock price behavior - Empirical tests. *Journal of Accounting Research*, 14(2), 246–276. <https://doi.org/10.2307/2490543>
- Santomero, A. (2004). Banking in the 21st century. *Business Review (Federal Reserve Bank of Philadelphia)*, Third Quarter 2004(1), 1–4. <https://web.b.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=1&sid=4f3a1937-6439-464a-9553-3cf8b9639948%40pdv-v-sessmgr04>
- U.S. Congress (2003). Check Clearing for the 21st Century Act (Public Law 108-100-Oct. 28, 2003). Retrieved from <https://www.congress.gov/108/plaws/pub1100/PLAW-108pub1100.pdf>



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