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Zakkary Hozella
Justice Cappella

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ECONOMIC IMPACT TO OVERALL STOCK MARKET VALUE FROM INFORMATION SECURITY & DATA BREACH EVENTS

Joseph Squillace  
Penn State Schuylkill  
jms10943@psu.edu

Justice Cappella  
Penn State Schuylkill  
jlc6927@psu.edu

Zakkary Hozella  
Penn State Schuylkill  
zjh5211@psu.edu

ABSTRACT
Technology as a medium is now integrated into every facet of our existence through complex information systems, bringing with it the required infusion of hardware, software, and data. Ensuring the successful implementation of technology, however, requires a dedicated commitment to security. Unfortunately, while Information Protection can be accomplished in a variety of ways, it is evident from recurring security breach incidents that a better understanding of why these events continue to occur is needed. In our research, we will approach the data breach concern from a different perspective; economics [1]. Specifically, we posit that there is not enough economic incentive to motivate companies to sufficiently invest in resources necessary to negate the ongoing threat of data breach incidents [2]. To arrive at a more accurate representation of the overall financial impact of data breach investments, we examine two organizations that address data threats differently: Facebook and Apple.

Keywords
Cybersecurity, information security, data security, data breach, privacy (breach), information systems, event study methodology

EXTENDED ABSTRACT
Through a review of the extant body of literature, we identified Event Study Methodology (ESM) as the appropriate tool to determine the financial impact of an isolated event on corporate stock market value; in this research, the event is the data breach [1]. Based on the demonstrably successful use of ESM across varying domains, including Accounting, Finance, Healthcare, and Technology [2], we extend its use case to tackle this problem. In this investigation, we will utilize ESM to examine the economic impact of data breach events. It is argued that minimal economic incentive exist to motivate proactive corporate investments in security. Specifically, we posit that the financial resources necessary to reduce the potential risk from security breach incidents are more cost-prohibitive [1] than the potential negative financial loss from a data breach. We further argue that taking a robust security posture towards data protection is aligned with organizational culture, with only minimal concern existing for the resultant potential financial loss to overall stock market value from a data breach. We will perform quantitative analysis of the data sample to determine the financial impact the data breach had on the overall stock market value of the associated corporation.

In our research, we will use Efficient Market Hypothesis (EMH) theory (Fama et al., 1969), with the relative Capital Asset Pricing Model (CAPM)-based Market Model (MM) to calculate market pricing using three stock market indices. Return data will use the MM to estimate daily returns for each corporation using 245 daily returns with an estimation window of 250 days [-250, -10] beginning -250 days before the first event and ending -10 days before the event.

The objective of this research is examining data breach incidents to better understand the financial relationship between stock market value and security investments. While little evidentiary data exists to encourage proactive investments in data security [1], this is the reason more research is needed [1], [2]; introducing new security methods to increase protection and wealth.

REFERENCES