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# Understanding the Business Value of IT Investments from the Combined Macro/Micro Views

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## Understanding the Business Value of IT Investments from the Combined Macro/Micro Views

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### Abstract

*Research aimed at understanding of how Information Technology (IT) investments impact on firm performance has produced incomplete and controversial results over the years. To improve understanding of the business value of IT investments we propose a theoretical framework to conduct and cross-examine a market (macro) view and an organisational (micro) view of IT investment value. This framework guides and informs a multi-method empirical study that is underway. It includes a) an examination of stock market returns on 10,000 IT investment announcements between 1990 and 2009, and b) in-depth case studies of value creation after IT is deployed in selected firms. The research will have three important contributions. First it will produce a comprehensive model of IT business value informed by both the market and the organisation view of the IT business value. Second, it will provide a thorough analysis of the impact IT investments (1990-2009) have had on the market value of firms, first of its kind in Australia. The third contribution from the study will include qualitative case studies of IT value creation in selected firms, providing a more nuanced interpretation that reveals contextual factors such as industry, environment, market conditions, and the like. This paper presents the theoretical model, research design and the first phase of the empirical study of the IT investment value from the market perspective. The study is expected to improve understanding of numerous factors relevant for assessing and predicting the business value of IT investments and thereby assist business and IT managers in making better informed IT investment decisions.*

### Keywords

IT impact, IT investment evaluation, IT business value, IT value creation, market view of IT value, organisational view of IT value

### INTRODUCTION

Investigation of the impact of Information Technology (IT) investments on a firm's performance has been, and is predicted to remain, one of major research topics for Information Systems (IS) researchers (Dehning et al. 2004, Ferguson et al. 2005b, Roztocki & Weistroffer 2008). Assessing the business value of IT investments is ranked among the top five key management concerns (Luftman & McLean 2004) and is likely to become even more critical for every firm in the future. It is therefore vital for business and IT managers to understand the complex and contingent implications of IT investments on the firm's strategic and economic performance and to be able to predict returns on IT investments. However, in spite of a significant number of empirical studies investigating the business value of IT, the fundamental question of the causal relationship between IT investments and firm performance remains unexplained (Baker et al. 2008). Empirical studies have been limited in scope and depth. Studies conducted at the macro level have not been informed by organisation-level studies (Chan 2000). They use different theoretical concepts and vocabulary.

Furthermore, quantitative and qualitative studies of IT value have been conducted separately without any attempt at cross-fertilisation (Chan 2000). Research so far provides incomplete and controversial evidence as to the difference that IT investments make on firms' performance, using either stock market performance measures or

accounting measures. These results are drawn from small samples and have not been verified by, or complemented with, firms' performance data after IT deployment. As a result, this important domain of research is characterised by a lack of in-depth theoretical understanding of the mechanisms by which IT investments impact on firm performance. It also lacks insight into methodological questions of measuring relevant variables and isolating IT investment impacts on firm performance in empirical studies.

This paper presents a research-in-progress that aims to advance understanding of how investments in IT impact on firm performance. More specifically the research examines:

- How different IT investment announcements (eg. different IT type, size, time of announcement) impact on firm performance (eg. market value, ROI, productivity), given specific contextual factors (eg. Industry type, IT intensity, market conditions, firm type and size), which is a view from a market perspective; and
- How different IT investments impact on organisational use of IT and the creation of business value under specific conditions (contextual factors), and how in turn the IT use and value created impact on firm performance, which is a view from an organisational perspective.

To examine these research questions we propose a theoretical framework that combines the market and the organisational perspectives for investigating the business value of IT. The market perspective investigates the impact of IT announcements on the market value of the firm based on historical data (event studies). The organisational perspective, on the other hand, focuses on business process improvements, productivity, and value creation from the IT deployment in a firm. By combining the two perspectives so that they inform each other this research adopts a novel approach to investigating the business value of IT that involves a series of interrelated studies:

1. An initial market perspective study, currently underway, that investigates the impact of IT investment announcements on the firm's stock market value based on a comprehensive data set of IT investment announcements (10,000) and stock market prices in Australia between 1990 and 2009 using the factors identified in the literature (Nagm & Kautz 2008a,b; Ferguson et al. 2005a,b);
2. From this market based analysis a number of firms that demonstrated exceptionally high, exceptionally low or normal stock market returns in the observed period will be selected for further examination; through the in-depth case studies of the selected firms additional organisational factors (e.g. transformation of business processes, strategic role of IT) and contextual factors (e.g. industry, environment and market conditions) that impacted on the relationship between the IT investment and the firm's value creation will be identified. The insights from these case studies will provide valuable outcome in itself and will also inform the development of an advanced model of the business value of IT investments that will include the new identified organisational and contextual factors;
3. The advanced model and the hypothesis regarding the relationship between the IT investment announcements and the stock market prices will then be more thoroughly examined in a series of tests (using the same data set of IT investment announcements but re-coded according to the advanced model).

As a result this research is expected to make a significant contribution to knowledge by developing and testing an advanced model of the business value of IT investments and by providing the first comprehensive analysis of the impact of IT announcements on firms' market for the period 1990-2009 in Australia.

The paper first presents a review of the literature (second section) and then proposes the theoretical framework to investigate the business value of IT investments (third section). The fourth section presents the research study and some preliminary results. The conclusion outlines the expected contributions and relevance of this research for both theory and practice.

## LITERATURE REVIEW

A variety of studies have been conducted to understand how IT provides value for business. The first theoretical models were based on the Bayesian statistical theory of information that explains how information produced by IT systems impacts on decision making and in turn affects the firm's performance (Cecez-Kecmanovic 1986). Using computer simulation such studies show that the value can be positive, zero or negative, depending on the congruence of business goals. These theoretical findings however were not empirically tested. The first empirical studies of the early 1990s focused on the relationship between IT investment and firm performance using either market measures or accounting measures (Dehning et al. 2004).

### A market perspective of business value of IT investments

The market performance measures express market reaction to IT investment announcements by firms. By adopting the *event study methodology* – widely applied in other disciplines (Barber & Lyon 1997) – researchers investigated the influence of IT investment announcements on shareholders’ assessment of the future value of the IT for the investing firm, measured by movements in the firm’s stock price. Results from these studies are inconclusive and contradictory as Table 1 highlights. The first study by Dos Santos et al (1993) finds no abnormal market returns following IT investment announcements from finance and manufacturing firms (97 in the sample) but observed a positive return on a subset of innovative IT investments. Other studies, however, found differences in stock returns depending on the type of IT investments (e.g. IT infrastructure vs. application; IT investments in industries with transformative IT role, e-commerce, ERP, etc.), the size of the firm (small vs. large), the industry, and other contextual factors. Results also depend on the time period observed.

Table 1. Summary Literature Review.

Factors	Studies and General Findings
Industry type	Dos Santos et al. (1993), Im et al. (2001) found industry has no impact while Lee & Lim (2006) and Nagm & Kautz (2008a) found a positive correlation between industry and the market value of firms.
Firm size	Hayes et al (2001) and Nagm & Kautz (2008a) found that firm size does affect the market value of firms when assessing IT investments while Im et al. (2001) found a negative impact.
IT type	Chatterjee et al (2002) found that there is a different impact to market value depending on the type of IT being announced to the market.
Innovation level	Dos Santos et al. (1993) and Ferguson et al. (2005a) both found a positive correlation between innovative IT investments and the market value of firms.
Time period	Nagm & Kautz (2008a) found the market value impact of IT investments on firms was affected by the time period it was made.

IT investment event studies tend to produce contradictory and inconclusive results due to a number of shortcomings. Firstly, these studies tend to have a narrow focus – e.g. including a particular industry or IT type, firm size, innovative vs. non-innovative IT, etc. - with the sample size ranging between 97 and 600 events. This prevents comprehensive cross-sectional analysis of multiple factors for which much larger samples would be needed. Second, there are several issues regarding event studies application. Apart from the crude statistical models used, there are numerous data quality issues as these studies typically do not account for a series of confounding factors including inflation, stock splits, dividends, duplicate events, similar events, other events on the same day, etc. These studies on the whole are very limited in terms of the factors included in their analysis of the value creation due to IT investments. Also, they are limited in the extent to which we can gain an understanding of longer-term patterns of value generation from the data gathered.

### An organisational perspective of business value of IT investments

Another stream of literature, emerging in parallel, focuses on realised benefits from IT investments using accounting measures of firm performance. Early studies reveal an unexpected correlation between increases in IT spending and decreases in productivity for the US economy that became known as a “productivity paradox” (Solow 1987). The term ‘productivity paradox’ was coined in response to the notion that as new IT is introduced in firms, productivity of the workforce may go down and not up. Despite significant publicity, the apparent productivity paradox has been demystified: numerous methodological flaws were found (Brynjolfsson 1993). The research model was found to be over-simplified as it failed to incorporate time lags or intermediate variables that impact on performance (Barua & Mukhopadhyay 2000). There is a systemic problem of isolating the impact of IT from enumerable other factors when examining the realised benefits of IT investments. Brynjolfsson (1993) offers four explanations as to why a paradox remains and why there is difficulty in linking firm gains to IT investments. First, measurement errors in productivity statistics that may not account for the types of benefits managers typically attribute to IT, such as increased quality, customer services, speed and responsiveness. The second explanation relates to the time it takes for the benefits of IT to flow through to the bottom line results of the firm, this may be due to lags resulting from learning and adjustment. Third explanation relates to IT not necessarily adding to firm output but still being beneficial for the firm. The fourth explanation suggests that investments in IT may not be productive at the firm level due to mismanagement of IT.

Stratopoulos and Dehning (2000) hypothesise that the reason why there is a weak link between IT investment and financial performance is the ineffective implementation of IT projects in firms. They find evidence showing that firms, which are successful users of IT, yield superior comparable financial performance to less successful users of IT, but this advantage is short lived. This may be due to competitors imitating IT projects, hence erasing any sustainable first mover advantage from investing in IT. They conclude that if the two factors of high failure rates and high investment in IT are combined then there should not be any positive correlation between the amount invested and performance. They quote Strassman (1997) as saying that the correlation between the amount invested and performance will continue to be insignificant even when controlling for such factors as industry, nature of investment in IT among others. Further illustrating the inconsistent and inconclusive nature of present empirical studies in the area.

A large portion of the literature focuses on the area of the realised value and payoff of IT. However, as Im et al. (2001) point out, it is difficult to establish causality between IT investments and firm level output performance because many factors influence firm performance. The relationship between IT investments and the firm performance remains difficult to understand and to investigate (Kamssu et al. 2003). It is of interest to both industry and academia given that IT investment expenditure continues to rise, along with the need to justify this expenditure.

## THEORETICAL FRAMEWORK

This research aims to re-examine the relationship between IT investments and a firm's performance. Drawing from previous studies from different streams of literature we propose a new theoretical framework that combines the market (macro) perspective and the organisational (micro) perspective, as illustrated in Figure 1.

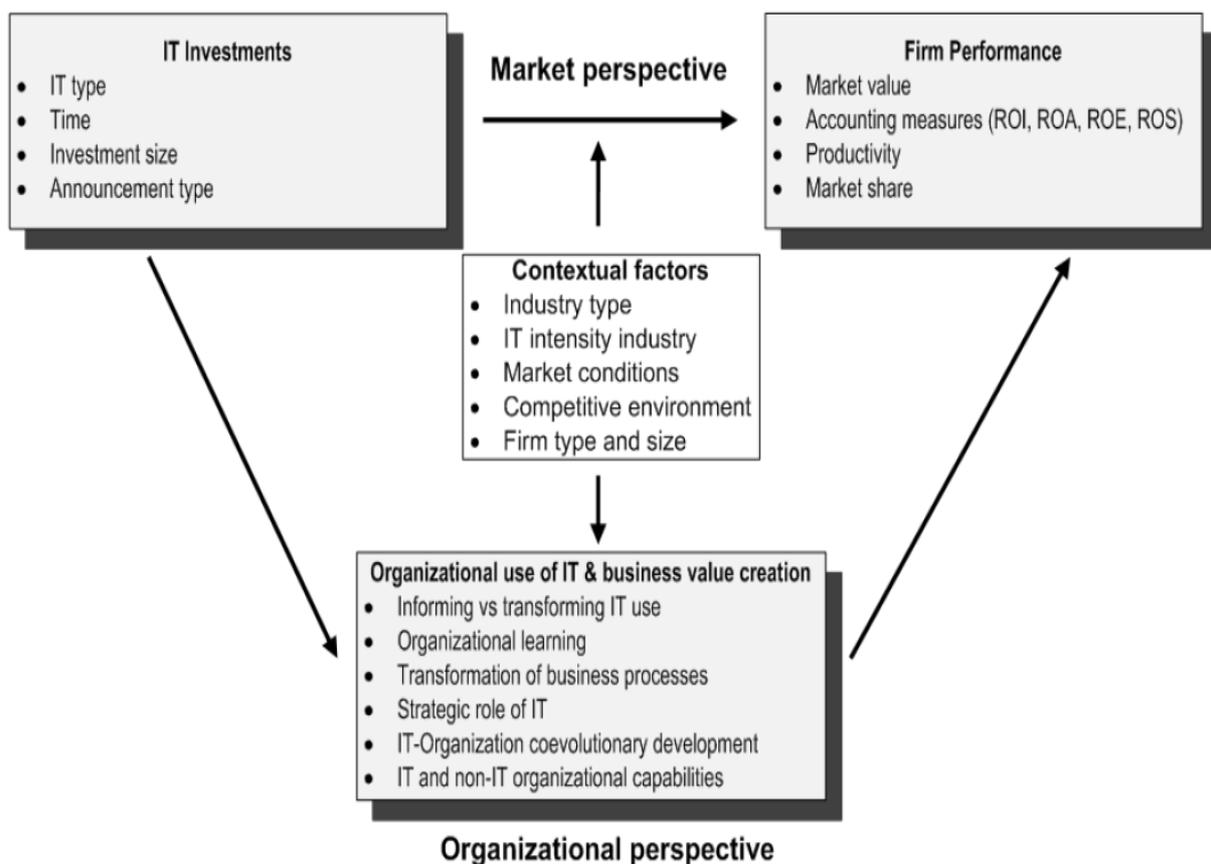


Figure 1. Theoretical framework that combines a market and organisational perspective to investigate the relationship between the IT investments and firm performance

The market perspective explores the direct relationship between the IT investment announcements and the resulting change in the firm's market value using the event study methodology. The benefit of the event study method is the ability to isolate the impact of IT investment announcements on the market value of a firm. Davern & Kauffman (2000), among others, recommend the use of leading indicators for IT valuation (i.e. potential or expected value), rather than lagging indicators (i.e. realised value) (Dehning et al. 2004). Event studies are

conducted with sensitivity to the type of IT investment (e.g. infrastructure, application, ERP), time of announcement and a phase in the IT investment and deployment (before or after purchase/development/implementation), size of investment, etc. Event studies also take into account specific contextual factors such as industry type, the intensity of IT use in industry, market conditions and the competitive environment at the time of announcement (Dehning 2003). Firm performance is measured by the change in the firm's market share price due to the IT investment announcement.

To address the shortcomings of the existing event studies we propose an additional study of the impact of IT investments on firm's performance from the organisational perspective. This study will include in-depth investigations of IT business value creation in selected firms. The case firms will be selected from different industries and based on the findings from event studies. Of particular interest are the firms that show distinctly positive, distinctly negative and neutral market returns at the time of IT announcements. The case studies of such firms will aim to provide in-depth understanding of the use of IT and their impact on business performance. The questions to be asked include: what differences in the industries and firms can explain the differences in their IT investment market returns? A comparative analysis of these cases will enable a more grounded understanding of the relationship between the IT investments and firm performance. These findings will in turn inform further revised event studies and the creation of a more comprehensive model of the impact of IT investments on firms performance.

The theoretical framework, presented in Figure 1, is proposed to assist researchers in investigating the IT business value from both the market and organisational perspective. It is intended to enrich and extend our understanding of IT business value, relevant for both theory and practice. In the next section we discuss methodological issues involved in the implementation of the framework.

## RESEARCH METHOD

To improve understanding of the business value of IT investments and specifically how IT investments impact on firm performance a multi-method study informed by the theoretical framework in Figure 1 is undertaken. A well accepted robust, and interesting way in which one may study the relationship between IT investments and firm performance from the macro or market perspective is through an event study method. It features prominently in financial research as a valuable analytical tool to detect the wealth effect of an event (Binder 1998, MacKinlay 1997, Ferguson et al. 2005a). As Seiler (2004) points out, an event study is a method that is used to measure how a firm's stock price reacts to newly released information. It is based on the premise that if an investment is believed to yield a positive Net Present Value (NPV) resulting from net discounted cash flows, the market value of a firm should increase (Dos Santos et al. 1993). NPV is a measure of the benefits expected to generate a return in excess of the firm's required financial rate of return (also known as the hurdle rate). If the firm is publicly listed on a stock exchange, and trading in an efficient market, the change in market value should be reflected in its stock price soon after such an announcement is made (Dos Santos et al. 1993, Hunter 2003). Furthermore, such changes in stock prices allow us to calculate the returns to IT investments (Dos Santos et al. 1993).

If the market re-values a firm's stock price based on an IT investment announcement, then it is reasonable to assume that there will be an impact on the market value of a firm (Dos Santos et al. 1993). The examination of stock price reactions to IT investment announcements is used to measure the market's assessment of the expected impact of IT investments on firm value (Dos Santos et al. 1993). Subramani & Walden (2001) argue that if investors can foresee future benefits to firm performance from IT investment announcements, this would lead to positive returns.

The study of IT business value and the IT impact on firm performance from an organisational perspective will adopt a comparative qualitative case study method (Neuman 2006). Case firms will be selected based on the differences in market value reaction due to IT investment announcements. Three sets of case firms will be selected: firms with a distinctly positive market reaction, firms with a distinctly negative market reaction and those showing no reaction. Comparative analysis of the case studies would seek to answer the question: what differences in the industries and firms can explain the differences in their IT investment market returns? Case studies will be based on historical data since the time before the IT investment announcement including financial reports and internal firm reports, and interviews with key business and IT managers. The aim of this qualitative analysis is to identify and measure the impact of IT investment on firm performance using accounting measures such as return on investment (ROI), return on assets (ROA), return on equity (ROE) and return on sales (ROS), productivity, market share and others. In addition, the qualitative analysis will investigate differences in business value creation that can be attributed to organisational learning (Hunter 2003), the strategic role of IT, informing vs. transforming role of IT (Dehning 2003, 2004), organisational IT and non-IT capabilities, etc.

In this way, in-depth studies from the organisational perspective will expand the understanding of the relationship between IT investments and the firm's performance by focusing on the processes of business value

creation due to IT deployment and use in the firm. As a result, new variables will be identified and new propositions for the model of IT business value will be created that will inform the second round of event studies. These propositions will then be tested in a series of expanded event studies, ultimately leading to an advanced model of the business value of IT investments.

The research design informed by the proposed theoretical framework includes three phases. In Phase 1 an initial study of IT investment impact on firm market value is currently conducted which will result in a selection of exceptional case firms. Phase 2 will involve an in-depth study of these cases to inform the development of a more comprehensive model of the business value of IT investments. This advanced model will then be empirically tested using the complete dataset in Phase 3.

#### Phase 1: Initial event study of IT investments (market perspective)

To date, just over 1,100,000 announcements have been collected from the Australian Stock Exchange (ASX) covering a 20-year period from 1990 to 2009. The relevant stock market data relating to each announcement was also collected in order to compute the stock price reaction to IT investment announcements. The remaining 3 quarters of 2009 data will be collected in due course. From this initial dataset we conducted a series of filtering exercises to identify only those announcements or events that pertain to IT, and more specifically IT investments. By identifying and removing all the confounding announcements, we were left with approximately 10,000 IT investment announcements. Any remaining relevant IT investment announcements in which other announcements were made on the same day (either related or not related) were excluded from the sample. This process will be repeated for the remaining 2009 data. The selected dataset effectively represents the total number of IT investments made public to the market since announcements were electronically recorded from 1990. The events in this dataset include announcements of IT investments in various stages of the investment cycle. This dataset is exceptionally large which is very rare in IS and IT empirical research literature. To our knowledge this is the largest repository of IT investment announcements anywhere in the world and presents an unprecedented opportunity for research to advance knowledge and understanding of the business value of IT. It allows a more refined analysis that drills down to finely classified industries and sectors as well as the type of IT investment. It also enables the formulation of more specific variables that impact on the value creation (or prevention) from IT.

The initial coding is based on a theoretical model developed from the literature, but has also allowed emergent codes to develop during the process. Two research assistants were employed to code the dataset independently. The researchers are working through all discrepancies resulting from the two independent coders to prepare the dataset for analysis and improve data quality and reliability.

The data are analysed using the event study method that we explain here briefly.

#### *Calculating returns*

Event studies have become the standard method of measuring stock price reaction to an event or announcement (Binder, 1998) and to the long-run return performance of investment decisions. The event study method allows us to compute each firm's abnormal return that is "the difference between the actual return and the expected return, where the expected return for each of the days in the event window is predicted using a regression" (Seiler 2004, pg. 221). In order to calculate the abnormal return we need to compute each firm's actual and expected return. We use the risk-adjusted model, which according to Gallagher and Looi (2005) is for a particular stock 's', "the return on stock 's' less the value-weighted benchmark (All Ordinaries Index) return on the characteristic-matched portfolio to which stock 's' belongs" (pg. 131). In short, in order to determine whether IT investment announcements have an impact on their firm's stock price we estimate what the stock price would have been had there been no announcement and compare it to the actual returns during the event window (Peterson 1989). Positive abnormal returns show that the market favoured the IT investment announcement and vice versa.

A firm's stock return is calculated using the following formula (Kamssu, Reithel and Ziegelmayr 2003):

$$R_{jt} = \alpha_j + \beta_j R_{mt}$$

$R_{jt}$  = rate of return for firm  $j$  on day  $t$

$R_{mt}$  = rate of return on the market portfolio on day  $t$

$\alpha_j$  = intercept term

$\beta_j$  = systematic risk of firm  $j$

If investors feel that the event will be of value to the firm they will react favourably and this is reflected in a positive abnormal return for the firm's stock in excess of the average stock market return around the date of the IT investment announcement (Subramani and Walden 2001). In other words, stock returns are subject to some

degree of noise or random statistical fluctuation, but an event study is looking for returns that exceed this normal level of variation. The abnormal return is calculated as follows (Subramani & Walden 2001):



$AR_{jt}$  = Abnormal Return on stock  $j$  for each day in the event window

$R_{jt}$  = return on stock  $j$  for each day in the event window

$\alpha_j$  = intercept term for firm  $j$  measure over the estimation period

$\beta_j$  = systematic risk for stock  $j$  measured over the estimation period

$R_{mt}$  = return on the market for each day in the event window

The CARs representing the aggregated average abnormal returns for the period, are calculated as follows (Kamssu, Reithel and Ziegelmayr 2003):



$N$  = Number of firms

Results from the event studies will be further analysed and interpreted. The event studies will also identify a series of cases where firms or industries recorded exceptionally high, exceptionally low and no market reaction to IT investment announcements, to be investigated further in Phase 2.

#### Phase 2: In-depth investigation of IT value creation and the IT impact on firm performance (organisational perspective)

In this phase a series of select case firms (approximately 30 firms) will be investigated in-depth to identify organisational factors (e.g transformation of business processes, the strategic role of IT) and contextual factors (e.g. industry, market conditions) that had an impact on the relationship between the IT investment and the firm performance. In each firm, we aim to interview 3-5 people and obtain a number of firm and industry documents, archival records and financial reports. The interviews will be transcribed and coded along with the other data sources using NVivo. They will be analysed thematically to identify the factors that determined the IT adoption and use and the ways the firm realised (or failed to realise) value from the IT.

Based on financial reports and other archival records, an analysis of firm performance using various accounting measures will be conducted. Such analysis of firm performance in the observed period and the qualitative in-depth analysis from the interviews and documents will be triangulated to answer the research question and explain the differences between the firms that had exceptionally positive or exceptionally negative or neutral market reaction. Based on this integrative analysis a new advanced model of IT business value will be proposed. This model together with the new hypothesis regarding the impact of IT investments on firm value will then be tested in subsequent event studies.

#### Phase 3: Event studies to test the advanced model of business value of IT investments

The advanced model of the business value of IT will be used to re-code and re-analyse the entire dataset of IT investment announcements (1990-2009). A series of event studies will be conducted to test the new hypothesis regarding the relationships between specific variables in the advanced model of business value of IT (see Figure 1).

### **PRELIMINARY RESULTS**

An event study was conducted for a random sub-set of the data consisting of 217 IT investment announcements from 1996 to 2006. These announcements were made by 188 firms across 20 industries. There were 93 IT investment announcements made by IT firms and 124 made by non-IT firms. The mean abnormal return is used to show the average market value impact of announcements for each day in the event window (i.e. the days before, on and after the announcement date). Figure 2 displays the mean abnormal returns for the random sample on each day of the event window (-5 to +5):

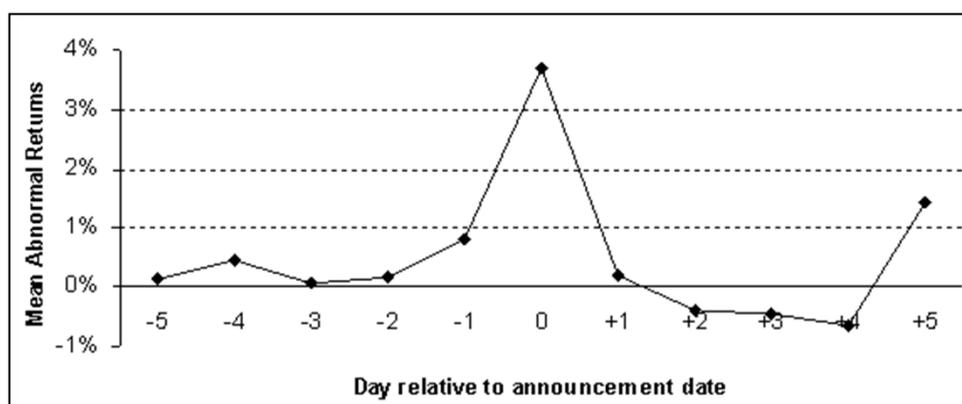


Figure 2. Preliminary results from the event study of a random sub-set of 217 IT investment announcements

It is evident that there is some activity prior to the announcement date suggesting possible leakage of announcement, especially the day before the announcement. The mean abnormal return on the announcement day for the whole sample was surprisingly 3.70%, which was both economically significant and statistically significant at the 1% level (statistical significance was determined using the two-tailed T test, which is quite standard for this kind of research). The subsequent decline in returns after the announcement date is consistent with an efficient market, that is, all or most of the gains or losses are impounded on the announcement day. After the announcement, the firms generate a normal return, which is clearly depicted in the graph showing returns returning to approximately zero the day after the announcement. However, on the days, +2 to +4 there is a negative impact, but this impact is not statistically significant. The market is reacting positively although not statistically significant on the fifth day following the announcement.

These results although only preliminary, suggest that the market in Australia does positively assess the returns of IT investments. A quick analysis of three different time periods revealed an interesting result, in 1996 - 1999 the return is 4.9%, in 2000 - 2001 the return is 3.87% and 2002 - 2006 the return is 1.84%. Further analysis will reveal more precisely what IT investment (and specific characteristics of each) the market considers value creating, value neutral or value destructive.

## CONCLUSION

The importance of IT for business, for improving efficiency and effectiveness of business processes, for transforming products and processes, and for achieving competitive advantage and strategic benefit, has never been greater. At the same time, tighter budgets and rationalisations in every aspect of business in times of crisis subject IT investments to ever-increasing scrutiny. Yet *what value IT provides to firms? and How it can be measured and predicted?* remain open research questions. In this paper we propose the integrated market and organisational perspective framework to examine the relationship between IT investments and firms' performance. The framework is implemented in an empirical study that investigates these questions by adopting an innovative multi-method research design. It combines a study of stock market returns on IT investment announcements informed by a number of in-depth case studies of value creation after IT deployment in selected firms. It includes all IT investments announced to the market in Australia between 1990 and 2009 (estimated to be about 10,000). This research is expected to produce an empirically grounded model of IT business value and an extensive analysis of how different IT investments (in different industries and firm types) impact on firms' market value.

The integrated market and organisational perspective framework proposed in the paper enables innovative examination of the relationship between IT investments and firms' performance in the following ways:

1. Cross-fertilisation between market-level analysis and organisation-level analysis adds a new dimension to the formation and testing of the hypothesis about the relationship between the IT investments and firm performance depending on a number of IT investment-related variables, contextual variables and organisation related variables;
2. Refinement of the event study methodology will address some of its shortcomings by combining it with comparative in-depth case analysis of exemplary industries and firms with positive and negative market returns and those that show no market reaction; More refined and deeper event studies will then be possible due to the comprehensive data sets of more than 10,000 IT investment announcements in the 1990-2009 period; Extending the research reported in the literature this project would enable a more comprehensive and detailed event study analysis.

The multi-methods study informed and guided by the theoretical framework is currently underway. It will have several interesting contributions. It will develop and test an advanced model of the business value of IT investments. The advanced model of the business value of IT investments will fill the gap in the literature and contribute to better understanding of the relationships between IT investments and firm performance. Due to its comprehensive testing based on exceptionally large sets of market data the model and the empirical evidence will be convincing for business and IT managers responsible for assessing and predicting the business value of IT investments. The model will broaden understanding of numerous factors (IT, internal organisational as well as contextual) that are relevant for assessing and predicting business value of IT investments. More importantly it will assist them in improving their assessment of IT investments in practice.

The study will provide a comprehensive analysis of the impact of IT announcements on firms' market value for the period 1990-2009 in Australia. As the first study of its kind this research will contribute to better understanding and assessment of IT contribution to national economy, industry sectors and firms. This will include better explanation of types of IT investments that are value creating and those that are value destroying; which industries are creating high value from IT investments and which are not; the differences in value creation from IT among large, medium and small firms, etc. It will also identify IT trends over time. On a broader level, these outcomes will be relevant for critical governmental decisions about national priorities and policies regarding the advancement and innovative deployment of IT in different industries and sectors.

Furthermore, event studies of more than 10,000 observations will be of the scale never done in the past. This will allow innovations in the ways event studies are performed. The advanced model of the impact of IT investments on the market value of the firm will give business and IT managers a useful view to examine, assess and benchmark the business value of their proposed IT investments. It will help managers determine the likelihood that the firm will experience sustained extraordinary returns from its IT investments, given the firm's characteristics, industry type, IT type, the strategic or non-strategic role of IT, etc.

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