UTS UNIVERSITY OF TECHNOLOGY SYDNEY

Essays on Acquisitions in Australia

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Thesis submitted in fulfilment of the requirements for the degree of

Doctor of Philosophy

under the supervision of Prof. Andrew Ferguson, Dr. Peter Lam, and Prof. Peter Wells.

University of Technology Sydney
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13 December 2021

Certificate of Original Authorship

I, Wei Hu, declare that this thesis is submitted in fulfilment of the requirements for the award of Doctor of Philosophy in the UTS Business School at the University of Technology Sydney. This thesis is wholly my own work unless otherwise referenced or acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

This document has not been submitted for qualifications at any other academic institution. This research is supported by the Australian Government Research Training Program.

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Date: 13-Dec-2021

Acknowledgments

I would like to thank the following people, without whom I would not have been able to complete my PhD study.

I would first like to express my sincere gratitude to my principal supervisor, Professor Andrew Ferguson, for his invaluable supervision, continuous inspiration, and exceptional support throughout my PhD journey. His insight and extensive knowledge have steered me in all the time of my research and my pursuit of an academic career. I am also deeply indebted to my co-supervisor, Dr. Peter Lam, for his thoughtful guidance, stimulating discussions, and endless patience. Without their tremendous understanding and encouragement in the past five years, it would be impossible for me to complete this thesis.

My sincere thanks also goes to all the staff and colleagues in the Accounting Discipline Group at UTS Business School. It is their kindness and support that have made my study and life in Sydney a wonderful time. I also thank my PhD fellows at UTS for all the laughter and fun we have had in the office.

A special thanks to my family. I am extremely grateful to my parents and parents-in-law for the spiritual and practical support throughout the years. The last word goes to my beloved husband and son, Byron Feng Tao and Bohao Tao, who have inspired me with their love and given me the extra strength and motivation to get things done. Thank you, Byron, for always being there through my ups and downs. Thank you, Bohao, for being such a good boy always cheering me up, even as you often bear the brunt of my moods and absences. You are a light of my life.

Thanks again to everyone who made this thesis and me possible.

Last, I thank myself for doing hard work, for not giving up, and for trying to be a better person.

Table of contents

List of Tables

Chapter 2:

Chapter 3:

Chapter 4:

List of Figures

Chapter 2:

Chapter 3:

Chapter 4:

Abstract

This thesis consists of three stand-alone essays investigating the topics of deal contracting and fair value accounting in acquisitions. The first essay investigates how acquirers structure transaction terms to reduce political uncertainty-related cost. Utilizing a large hand-collected sample of 3,283 project acquisitions by Australian mining exploration entities over 1998-2017, I find that acquirers tend to structure transactions in stages in response to high political uncertainty. In addition, the stock market reacts more favourably to staged acquisitions than non-staged acquisitions when higher political uncertainty is observed. Further, I identify three potential mechanisms through which staged acquisitions help acquirers reduce the negative consequences of political uncertainty: low abandonment costs, the securing of overseas targets, and long contract duration. These findings underscore the importance of staged deal structure as an effective tool that helps mitigate uncertainty in acquisitions.

The second essay examines abandoned deals. Specifically, I investigate how policy uncertainty affects both the acquisition process during the post-announcement period and acquisition outcomes. Three main results are presented. First, rising policy uncertainty after initial acquisition announcements is associated with longer time to close deals. Second, prolonged high policy uncertainty plays a critical role in triggering acquisition abandonment. Third, the stock market reacts negatively to deal abandonment, but to a lesser extent if the abandonment decision is made amid protracted policy uncertainty. The muted market reactions are also associated with managers' explanations for deal abandonment decisions. Consistent with anecdotal

observations, the results in the second essay imply that policy uncertainty is an important "deal-breaker" in acquisitions.

In the third essay, I explore the economic consequences of fair valuing earnouts or contingent consideration in acquisitions required by IFRS 3 (2008). Using a sample of completed acquisitions by Australian firms over 2001–2017, I find evidence of managerial opportunism in earnout accounting. Acquirers are likely to overstate earnout liabilities under IFRS 3 (2008), with a reversal of unpaid earnout liability recorded as a fair value gain over the earnout period. As a result, the enactment of IFRS 3 (2008) leads to a significant increase in the frequency and magnitude of earnouts in public acquirers' transactions. Moreover, as expected, high-quality auditors help curtail managerial reporting discretion in fair valuing earnouts. Further, there is no mechanical relation between reversals of earnout liabilities and the recognition of goodwill impairment losses. These findings highlight an unintended consequence of fair value accounting with respect to earnout contracting and acquirers' financial reporting.

Chapter 1: Introduction

1. Introduction and key findings

This thesis consists of three essays on acquisitions in Australia. Acquisitions are one of the most important corporate investment activities in the real economy. For example, domestic merger and acquisition (M&A) transactions in Australia in 2018 reached a value of approximately 49 billion US dollars. Given the frequency and significance of acquisition activities, learning how to mitigate the information asymmetry between an acquiring firm and its target has long been a focal point in acquisition contracting. Therefore, this thesis primarily focuses on Australian acquirers' attempts to reduce valuation uncertainty in their transactions. The findings of this thesis will be of interest to investors, practitioners, academics, and regulators alike.

The first essay of this thesis examines how firms alter acquisition deal terms to mitigate exposure to political uncertainty. Australia and other western democracies have been experiencing a heightened level of political uncertainty. Against this backdrop, an emerging literature in corporate investment finds that political-related uncertainty negatively affects acquisition activities at both the macro and firm levels (Nguyen and Phan, 2017; Bonaime et al., 2018; Cao et al., 2019). However, a potential acquirer considers not only how political uncertainty affects the sector or the acquiring firm itself, but also how best to structure transactions to reduce their exposure to uncertainty (Chen et al., 2021). Based on a hand-collected sample of 3,283 project acquisitions by Australian mining exploration entities (MEEs) from 1998 to 2017, with 43% being staged deals, the first essay documents that acquirers likely structure transactions in stages when facing high political uncertainty.

This finding has an intuitive explanation. Most acquisition deals in the mining industry typically proceed in stages and take a long time to complete. Similar to structuring a compound option, initiating a multi-stage acquisition provides the buyer with two main benefits: (1) the flexibility to make sequential investment decisions in response to future good news, and (2) the possibility of an abandonment to truncate the downside risk of bad news (Marmer and Slade, 2018). As a result, when facing high political uncertainty, an acquirer is likely to negotiate a multi-stage deal, which enables the buyer to secure investment opportunities while staying flexible in coping with uncertainty.

Next, the wealth effects of acquisitions with different deal structures under uncertainty are examined. The results suggest that the stock market reacts more favourably to acquirers' announcements of staged transactions than non-staged deals when political uncertainty rises. This evidence implies that market participants reward acquirers' uncertainty-mitigation strategies at the transaction level.

Further, three economic mechanisms that underlie the upside of staged deal structure under uncertainty are verified. Specifically, a transaction with a relatively low exit or abandonment cost (i.e., acquiring an option to purchase a project) has the most profound, positive impact on the acquirer's shareholder value under high political uncertainty. In addition, offshore staged acquisitions generate stronger stock returns for acquiring firms than domestic non-staged transactions when higher political uncertainty is observed. Further, acquirers tend to negotiate longer-term contracts for staged payments, thereby being more adaptable in times of uncertainty (Crocker and

Masten, 1988; Fudenberg et al., 1990; Cain et al., 2011). Overall, the first essay identifies an effective deal-level uncertainty mitigation strategy in acquisitions.

The second essay of this thesis focuses on the implications of policy uncertainty on acquisition process *after* deals are announced. Despite ample anecdotal evidence suggesting that policy uncertainty is an important deal-breaker in acquisitions, there is little empirical evidence on this matter. Motivated by the incomplete contracting theory (Hart and Moore, 1988; Aghion and Bolton, 1992; Tirole, 1999), it is hypothesized that policy uncertainty affects not only the acquisition process during the interim period but also acquisition outcomes.

Incomplete contracting theory suggests that contracts are inherently incomplete as contracting parties cannot fully anticipate or explicitly specify all future states of the world (Hart and Moore, 1988; Aghion and Bolton, 1992; Tirole, 1999). After signing the original agreement, acquisition parties continue to receive new information and keep reviewing pending transactions (Hotchkiss et al., 2017; Lai and Pu, 2019). If policy uncertainty rises and lingers after an initial deal announcement, it may change the economic implications of the proposed investment, potentially leading to contract revision or even termination. The findings of the second essay are consistent with this prediction.

Based on a sample of mining project acquisitions by Australian MEEs over 1998-2017, it is found that acquirers tend to delay deal completions when they face elevated policy uncertainty after an initial deal announcement. This finding is consistent with the real options theory that suggests investors are more likely to adopt a "wait-and-see" strategy under higher uncertainty (McDonald and Siegel, 1986). Importantly, a direct

link between prolonged policy uncertainty and acquisition abandonment is documented, a finding shedding new light on factors affecting acquisition outcomes. Further, the firm-specific cost of an acquisition abandonment, as perceived by the equity market, largely depends on the extent of policy uncertainty. For example, the stock market tends to penalize acquirers' deal abandonment decisions to a lesser extent after observing a longer period of high policy uncertainty. These results are robust to different model specifications, matched sample analysis, and an instrumental variable approach. Collectively, the findings in the second essay confirm anecdotal evidence that policy uncertainty is a key determinant of acquisition abandonment.

The third essay of this thesis investigates the economic consequences of fair valuing earnouts or contingent consideration in acquisitions. Earnout payment is the proportion of the acquisition purchase price paid by an acquirer to the target in the future, contingent upon the target achieving future performance hurdles or milestones (Kohers and Ang, 2000). Earnout agreements are typically used to mitigate valuation uncertainty in acquisition deals (Cain et al., 2011; Barbopoulos and Sudarsanam, 2012; Jansen, 2020). The revised IFRS 3 (2008), for the first time, requires an acquirer to recognize earnouts as a liability at fair value at the transaction date, with subsequent valuation adjustments recorded as gains or losses.

Although this new accounting rule may add to contracting costs and measurement difficulties (Asbra and Miles, 2009; Battauz et al., 2021), it allows for managerial opportunism as acquiring firms can obtain a "free" profit boost during the post-acquisition period. This is due to counterintuitive income statement effects of fair value accounting on financial liabilities (i.e., earnout liabilities). For example, when an

acquired target fails to achieve earnout performance hurdles (i.e., bad news), the acquiring firm's earnout liability decreases, resulting in a fair value gain that increases the acquirer's income (i.e., good news) (Nissim, 2019). Acquirers are thus likely to overstate the initial earnout liability, with the unpaid earnout liability serving as a "cookie jar" reserve, which, upon reversal, is recorded as income over the earnout period (Gunn, 2017).

Utilizing a sample of completed acquisitions by Australian acquirers from 2001 to 2017, the third essay presents evidence consistent with the view of managerial opportunism in earnout accounting. A difference-in-difference analysis shows that the enactment of the revised IFRS 3 leads to a significant increase in the use (frequency) and size (magnitude) of earnouts in public acquirers' transactions, compared to the use of earnouts in private acquirers' transactions. In addition, a significant overstatement of initial earnout liabilities is observed during the post-IFRS 3 (2008) period. This result echoes concerns from professional groups with respect to the reliability of earnout fair value estimates.

Further, multivariate analysis suggests that the overall upward bias in estimating earnout liabilities appears to be associated with acquiring firms' characteristics rather than misvaluation of the target. Specifically, acquirers with a higher leverage, larger operating cash flow, and lower profitability are more prone to overstate their initial earnout liability, while the common proxies for valuation uncertainty in acquisitions do not explain such a decision. As expected, high-quality auditors help curtail acquirers' discretion in estimating earnout values. Importantly, there is no mechanical relation between a downward adjustment of the earnout liability and an impairment charge to

acquisition-specific goodwill. This finding thereby lends further support for managerial opportunism. Overall, the final essay of this thesis provides *direct* evidence on the unintended consequences of fair value accounting for financial liabilities in a non-banking setting.

In summary, this thesis makes several contributions to the literature. First, it adds to the literature on the real effects of political uncertainty on corporate investment. It provides empirical evidence showing that small acquirers respond to high political uncertainty by altering deal structures. Second, this thesis extends the literature examining determinants of acquisition abandonment and market sentiment to firm announcements in uncertain times. Third, it contributes to the fair value accounting literature by documenting how accounting shapes acquisition activities.

2. Research background and motivation of the thesis

Chapters 2 and 3 in this thesis focus on the impact of policy uncertainty on project acquisition activities by Australian MEEs. This research setting is chosen because of the importance of MEEs in Australia's economy, the unique characteristics of MEEs and their project acquisitions, and external validity of the findings to other types of investment featured with high information asymmetry and high failure rate.

First, the Australian economy largely depends on the mining sector, which accounts for one-third of companies listed on the Australian Securities Exchange (ASX) and around 50% of Australia's export income (Bui et al., 2021). Industry participants actively engage in mineral exploration and acquisition activities, turning Australia into the most active mining acquisition market. For example, Australian mining acquisitions in the first half of 2020 were worth USD $3 billion, accounting for about

11 per cent of the value of global deals. Thus, an investigation on how policy uncertainty affects mining acquisition activities would be of interest to policy makers, industry participants, investors, and academics alike.

Second, early-stage firms' acquisition attempts have long been ignored in the literature. Prior studies typically focus on large acquirers with large deals. For instance, the data selection in most M&A research typically places a lower limit on deal value (e.g., USD $10 million) or firm size (e.g., USD $50 million), with the deliberate intention of excluding small firms with small deals (e.g., Schlingemann, 2004). However, small firms' motivations for acquisitions, deal contracting behaviour and financial attributes differ significantly from those of large firms and, therefore, should deserve more academic attention (e.g., Moeller et al., 2004; Weitzel and McCarthy, 2011).

Specifically, unlike large diversified firms, MEEs rely on project acquisitions for external growth. This is the reason why project acquisitions are often referred as "lifeblood" of the mining industry participants. MEEs share a clear and homogeneous business objective to make economic resource discoveries, which are critical to their survival and, to a large degree, fuelled by mining project acquisitions. Nevertheless, MEEs' acquisition activities are subject to several types of friction, including (1) the inherent risk of exploring for economic mineral occurrences (e.g., high information asymmetry, exploration technicality, long project development), (2) an increased level of policy uncertainty and regulatory scrutiny due to work health and safety concerns (Christensen et al., 2017), environmental protection (Heenetigala et al., 2015), taxation (Monem, 2003), and the impact of mining activities on Indigenous Australians

(Scambary, 2013), and (3) a lack of internal funding because no operating revenue is generated during the exploration and pre-development phase, which routinely takes between 10-20 years (Ferguson and Lam, 2021). As such, MEEs are vulnerable to any heightened level of uncertainty, which has a great impact on deal attributes in MEEs' acquisition contracts.

Third, the context of MEEs is a relatively clean setting to test how policy uncertainty shapes acquisition activities. As mentioned above, building robust portfolios through value-increasing project acquisitions is an integral part of MEEs' business model. Unlike self-serving managers' motives for acquisitions (e.g., managerial hubris, entrenchment, and empire-building management, see Jensen, 1986; Roll, 1986; Shleifer and Vishny, 1989), the incentives for managers in small firms are better aligned with those of shareholders (Moeller et al., 2004). This is applicable to MEEs as prior studies find that compensation practices in the Australian MEEs are sufficient to enhance exploration prospectivity with limited signs of managerial entrenchment (e.g., Bui et al., 2021). Moreover, although it is well documented that political connections or activism could offset the negative effects of political uncertainty on corporate investments (e.g., Ferris et al., 2016; Wellman, 2017; Ovtchinnikov et al., 2020), these efforts are often associated with non-trivial costs and impractical for most small or early-stage firms like MEEs. Hence, this thesis aims to examine how small firms with limited capital resources are able to mitigate political uncertainty and improve acquisition efficiency.

Last, although the research setting is confined to the Australian MEEs, the findings have external validity to other types of investments. For example, R&D projects in

biotechnology/biopharmaceutical firms share many common attributes as mining exploration projects, e.g., the inherent scientific risk, long life-cycles, high failure rate, and stringent regulatory scrutiny. Also, both early-stage pharmaceutical firms and MEEs are typical loss firms with significant expenditures on R&D or mining exploration, which make it difficult for investors to assess the performance of these types of firms (e.g., Ferguson and Lam, 2021). Thus, due to obscured financial performance and long project development, firms' disclosure (i.e., announcements) of starting a new project or achieving certain project milestones often receives significant market reactions.

Nevertheless, the literature mainly focuses on the impact of government policy uncertainty on R&D investments in the US owing to data availability and the importance of knowledge-based industries in the US. For example, Atanassov et al. (2019) examines the relationship between political uncertainty and R&D investment using the US setting. The authors find that uncertainty over government policy stimulates firm-level R&D, suggesting that the real effects of political uncertainty depend on the properties of the investment. Similarly, both Koijen et al. (2016) and Jørring et al. (2021) highlights the importance of government risk in slowing down medical innovation. Tian and Ye (2018) further show that venture capital investment relies more on staged financing to address policy uncertainty. As such, this thesis extends the scope of both the acquisitions and policy uncertainty literature to the MEE setting. The findings have important practical implications on how small, high risk firms could respond to political uncertainty and protect shareholders interests in acquisition activities.

3. Thesis structure

Although the three essays in this thesis are all related to acquisitions in Australia, each essay is structured as a separate research paper. Chapter one introduces the thesis and chapters two-four present the three essays respectively. Each essay includes an introduction, empirical predictions, sample/data, empirical results, and concluding remarks. This structure has resulted in some duplication in the essays' introductions and, in particular, in the sample selection and research background of chapters two and three. Main tables and appendices are included for each of the three essays.

Chapter 2: Political uncertainty and deal structure in acquisitions

1. Introduction

An emerging literature in corporate investment finds that political uncertainty negatively affects acquisition activities at both the macro and firm levels (Nguyen and Phan, 2017; Bonaime et al., 2018; Cao et al., 2019). However, the literature does not explore the implications of political uncertainty on the deal structure of acquisitions. A potential acquirer considers not only how political uncertainty affects the industry/firm itself, but also how best to structure transactions to reduce that entity's exposure to uncertainty. This chapter, therefore, investigates the impact of political uncertainty on acquisitions at the deal level and, in particular, explores whether deal structure helps mitigate political uncertainty.

Economic theories have different predictions on the sign of the investment-uncertainty relationship. The standard real options model suggests that uncertainty deters irreversible investments as managers wait for more information before committing (Bernanke, 1983; McDonald and Siegel, 1986; Dixit and Pindyck, 1994; Abel et al., 1996); this explanation is often referred to as the "bad news principle". Yet, not all investments meet the two strict conditions assumed under the real options theory: "completely irreversible" and "firms' ability to wait" (Bloom, 2014; Stokey, 2016). Other studies argue that uncertainty may encourage investment if projects proceed in stages or if firms face competition (Bar-Ilan and Strange, 1996, 1998; Hartman, 1972; Caballero, 1991). This is also known as the "good news principle". Intuitively, if an acquisition proceeds in stages (e.g., a transaction with contingent payments) or if an acquiring firm seeks first-mover opportunities (e.g., acquiring a 6-month option to purchase a project), then the buyer will be at an advantage not only securing growth

options by acting first, but also staying flexible to cap the costs of bad news by withdrawing from the deal, long before the acquisition price is fully paid. Thus, without examining the role of deal structure, it is premature to conclude that the negative relation between political uncertainty and acquisitions always holds.

This chapter utilizes the context of project acquisitions by Australian mining exploration entities (MEEs) to examine the implications of political uncertainty on acquisition deal structure. This setting offers unique empirical advantages. For example, the mining industry is one of only a few industries having option-like investments (e.g., Moel and Tufano, 2002; Slade, 2001). Most acquisition deals in the mining industry typically proceed in stages and take a long time to complete. Similar to structuring a compound option, initiating a multi-stage acquisition provides a buyer with two main benefits: (1) the flexibility to make sequential investment decisions in response to future good news, and (2) the possibility of an abandonment to truncate the downside risk of bad news (Marmer and Slade, 2018). As higher uncertainty increases the spread of possible outcomes in both good and bad states of the world, the value of staged deal structure in acquisitions would increase with uncertainty (Berk et al., 2004). Hence, the setting of mining sector acquisitions enables researchers to examine whether acquisitions with different deal structures respond differently to varying degrees of uncertainty.

Beyond its empirical advantages, the setting is also economically important. The Australian economy largely depends on the mining sector, which accounts for around 50% of export income. Industry participants actively engage in mineral exploration and

acquisition activities in over 100 countries.[1] As a large resource-based economy, Australia is one of the most active mining acquisition markets.[2] Hence, any uncertainty affecting the mining sector is a focal point of political debate in Australia. For instance, the introduction of a federal mining tax in 2010 arguably became a protracted political saga that dominated two federal elections and contributed to the demise of two Prime Ministers (Eccleston and Hortle, 2016). The Australian political backdrop and economic significance of the mining sector thus create an ideal setting for examining the implications of political uncertainty on corporate investment, which is of interest to policy makers, industry participants, investors, and academics alike.

Utilizing a large hand-collected sample of 3,283 project acquisitions by Australian MEEs from 1998 to 2017, with 43% being staged deals, this chapter assesses the direction and magnitude of the effect of political uncertainty on acquisition activities.[3] Political uncertainty in Australia is measured using the Australian two-party preferred voting intention index (hereafter TPP) (e.g., Ferguson and Lam, 2016; Smales, 2016). The main findings of this chapter are as follows. First, acquirers are more likely to structure transactions in stages when facing a higher level of political uncertainty. Specifically, the logistic regression results indicate that, holding other variables fixed at their sample means, a 1-standard-deviation increase in political uncertainty is

[1] Source: Minister for the Department of Industry, Science, Energy and Resources.
[2] For example, Australian mining acquisitions, which were worth a total of USD 3 billion in the first half of 2020, accounted for about 11 per cent of the value of global deals. See Evan, N., August 9, 2020, "Mining sector set for fresh wave of mergers and acquisitions." *The Australian.*
[3] In this chapter, an acquisition is identified as a staged transaction if it is: (1) a farm-in deal (e.g., a multi-stage acquisition with the acquiring firm's exploration expenditure commitments); (2) an option agreement (e.g., acquiring an option to purchase a project); (3) an acquisition with contingent payments (e.g., a proportion of total consideration is deferred and conditional on the target achieving certain performance hurdles); or (4) an acquisition with instalment payments. See examples of staged acquisition announcements in Appendix 2.

associated with a 10.5% increase in the probability of acquirers engaging in a staged acquisition in the following year. This evidence provides empirical support for the "good news principle", which suggests that uncertainty triggers option-like or staged investment (Atanassov et al., 2019; Kraft et al., 2018; Stein and Stone, 2013; Van Vo and Le, 2017).

Second, market participants consider acquirers' response to political uncertainty at the deal level. The stock market reacts more favourably to staged transactions than to non-staged deals when political uncertainty rises. For example, when the level of political uncertainty is ranked in the top quartile over the sample period, acquirers' 3-day announcement cumulative abnormal return (CAR) is, on average, 3.9% higher for staged deals than for non-staged deals.[4] However, this difference is insignificant in periods when the level of political uncertainty is ranked in the bottom quartile. Therefore, the findings confirm that investors reward acquirers' uncertainty-mitigation strategy at the transaction level.

Finally, there are three (not mutually exclusive) channels identified through which staged deals help acquirers mitigate costs related to political uncertainty. Consistent with the "good news principle", it is found that a transaction with a relatively low exit or abandonment cost (i.e., acquiring an option to purchase a project) has the most profound, positive impact on an acquirer's shareholder value under high political uncertainty. In addition, offshore staged acquisitions produce noticeably stronger positive market reactions than domestic non-staged transactions when a higher

[4] Abnormal returns are market-adjusted returns using equal-weighted daily returns of all ASX-listed stocks as the market benchmark, which is sourced from SIRCA.

level of political uncertainty is observed. The intuition is that not only do offshore staged acquisitions reduce acquirers' exposure to domestic political uncertainty, but that they also help acquirers secure growth opportunities abroad with flexibility in dealing with post-acquisition unexpected events. Further, consistent with contract theory, acquirers tend to negotiate longer term contracts for staged payments, thereby being more adaptable in times of uncertainty (Crocker and Masten, 1988; Fudenberg et al., 1990; Cain et al., 2011). Collectively, three potential mechanisms that underlie the upside of staged deal structure in acquisitions are identified: low abandonment costs, the securing of overseas targets, and long contract duration.

Overall, this chapter contributes to the literature in two main ways. First, it adds to the literature on the real effects of political uncertainty on corporate investments. Prior empirical studies present mixed results. For instance, Gulen and Ion (2015) find that political uncertainty deters capital expenditure, while Atanassov et al. (2019) suggest that high political uncertainty encourages staged investment. By exploring deal-level features in mining sector acquisitions, this chapter provides empirical evidence showing that political uncertainty triggers option-like or staged transactions, which protect shareholder value in times of uncertainty. The findings help reconcile prior empirical differences and promote a deeper understanding of the uncertainty-investment relation, which is largely dependent on the properties or structures of individual projects.

The results in this chapter also have broader implications on uncertainty management strategy. Prior studies find that political connections or activism could offset the negative effects of political uncertainty on corporate investments (e.g., Ferris

et al., 2016; Wellman, 2017; Ovtchinnikov et al., 2020). Nevertheless, these efforts are primarily associated with non-trivial costs and, thus, impractical for most small or early-stage firms like MEEs. In terms of investment with lags, Tian and Ye (2018) show that venture capital investment relies more on staged financing to address policy uncertainty. Similarly, by showing that structuring a multi-stage acquisition helps protect acquirers' shareholder value under uncertainty, this chapter sheds light on an effective yet undocumented uncertainty-mitigation tool in acquisitions. Though the test sample is confined to the mining industry setting in Australia, the findings have practical implications for uncertainty management strategies in corporate investment, particularly for small, high risk firms.

The remainder of this chapter proceeds as follows. Section 2 outlines empirical predictions. Section 3 describes the sample selection and summary statistics. Section 4 presents the empirical results and discussion. Section 5 concludes this chapter.

2. Empirical predictions

2.1 Preference for staged acquisitions in times of political uncertainty

How do acquirers respond to political uncertainty at the transaction level? It is hypothesized that high political uncertainty motivates acquirers to structure transactions in stages. This prediction is grounded on the work of Bar-Ilan and Strange (1996; 1998). They show theoretically that uncertainty encourages firms to carry out multi-stage investment due to its option-like characteristics and time-to-build considerations. This is particularly applicable to project acquisitions in the mining sector.

To illustrate, consider an example of an MEE proposing to acquire a mining project for $5 million. Subsequently, political uncertainty increases because one political party supports the Resource Super Profits Tax while the other party strongly opposes it. Due to uncertainty about the possible changes in taxation policy and the duration of the debate, a potential acquirer may decide to delay the investment if it is irreversible. However, the value of waiting to avoid bad outcomes has to be weighed against the opportunity cost of income foregone from early investments (Bar-Ilan and Strange, 1996). If the potential acquirer could secure this investment project with an upfront payment or option fee of $500,000 in the first six months, then that acquirer—assuming the upfront payment or option fee was successful—could initiate a sequential option and make a larger capital investment of $2 million in the following year. Thereafter, the third tranche payment of $3 million would be triggered in the third year if the buyer were satisfied with both the overall exploration results and the political and investment environment. As a result, the buyer has an option to proceed with the transaction from stage one to stage three if in good states, or abandon the project at the end of the granted option period at a sunk cost of $500,000 if in bad states, long before the $5 million is fully paid. In other words, a staged deal structure allows the acquirer to more flexibly time any subsequent sequential investments in response to good news. The possibility of abandonment in an option-like transaction also allows the acquirer to truncate the downside risk of bad news (Marmer and Slade, 2018). Therefore, when facing high uncertainty, MEE acquirers are likely to structure proposed transactions in stages to ensure flexibility, while not missing out on any underlying investment opportunities.

In addition, staged deal structures can help alleviate acquirers' financial constraints. This is because a fraction of the purchase price is deferred, allowing an acquiring firm to conserve cash or avoid costly external financing under high uncertainty. For example, Bates et al. (2018) document that the arrangement of contingent payments or earnouts in acquisitions, one major type of staged deal in this setting, is an economically material source of acquisition financing for capital-constrained firms. Moreover, MEEs are often called "cash burners" as they have no production revenues and instead primarily rely on equity financing during the exploration stage, which often takes between 10-20 years (Ferguson and Lam, 2021).[5] As a result, their capital constraints could be further exacerbated by political uncertainty, which makes it harder and more costly for firms to raise capital to fund investment projects (Colak et al., 2017; Jens, 2017). Accordingly, it is posited that, following an increase in political uncertainty, staged deal structures are more desirable than one-off payments for MEE acquirers in their transactions.

2.2 Wealth effects of staged acquisitions under political uncertainty

In this chapter, the link between political uncertainty and value-creation of staged acquisitions is also examined. Examining acquisition transactions affords several advantages to better assess the magnitude of the effect of political uncertainty. Unlike firm-level aggregate capital expenditure, acquisition activities are observable and economically material events, from which researchers are able to observe and measure

[5] There are five stages in the mining life cycle: exploration, evaluation, mine-site development, production, and closure.

the wealth effects of individual investment projects.[6] In addition, as opposed to capital expenditure that is disclosed in regular financial reports, acquisition deals can be aggregated by month based on the announcement date, providing a granular picture of the sensitivities in investment activity around uncertainty changes (Bhagwat et al., 2016).

In addition, prior studies have not reached a conclusion on the value creation of acquisitions under political uncertainty. Bonaime et al. (2018) show that the acquirer announcement CAR does not differ between high and low policy uncertainty periods. Nguyen and Phan (2017) suggest that acquisitions completed during high policy uncertainty periods create value for acquirer shareholders, because acquirers facing uncertainty act more prudently and screen targets and acquisition terms more carefully. By contrast, Adra et al. (2020) document a negative link between policy uncertainty and the acquirer announcement CAR. They argue that acquirers face significant business risk when proceeding with acquisitions under uncertainty, leading to a decrease in acquirers' shareholder value. By focusing on the impact of acquisition deal structure on acquirer shareholder value under uncertainty, this chapter extends this line of literature and offers findings that potentially help reconcile prior empirical differences.

As discussed earlier, a staged transaction enables an acquiring firm to secure growth options, manage its exposure to political uncertainty, and alleviate its financial

[6] There is an emerging literature that considers corporate investment at the project level. For example, Gilje et al. (2020) and Décaire et al. (2020) examine project-level investment decisions in the US oil and gas industry, Cohn et al. (2020) explore firm value and project announcements (e.g., new product announcement) in both the US and international markets, and Cunningham et al. (2021) investigate acquisitions of pharmaceutical drug projects.

constraints. These advantages are all expected to protect acquirers' shareholder value in times of high political uncertainty. Thus, it is conjectured that investors would react more favourably to staged acquisitions than to non-staged deals when political uncertainty rises.

2.3 Deal agreement, location of target asset, and contract duration

This chapter further outlines the (not mutually exclusive) mechanisms underlying the uncertainty-mitigation effect of staged deal structure. The first hypothesized mechanism is the ease of abandonment in an option-like acquisition. Bar-Ilan and Strange (1996) suggest that uncertainty encourages staged investments partly due to the option of abandonment to cap the costs of bad news. As such, compared to the irreversibility of non-staged acquisitions, the low "exit" cost of staged deals would become more attractive and valuable to potential acquirers facing higher uncertainty. In addition, even among staged acquisitions, the cost of deal abandonment varies. For instance, an option agreement to acquire a project arguably has a relatively lower abandonment cost than that of others. This is because the amount of the option fee paid by an acquirer is normally much smaller than the upfront payment in other types of staged acquisitions (e.g., deals with contingent consideration or equal instalments). Importantly, most option transactions are not associated with definitive acquisition agreements or deal protection mechanisms (e.g., termination fees). See Appendix 2, Example 3 for deal terms in an option agreement. In this agreement, the acquiring firm can withdraw from the acquisition at any stage without paying a termination fee. Retracting such option deals are thus less costly to the acquiring firm. In other words, the availability of an abandonment option partly helps limit the acquiring firm's

downside risk in times of uncertainty. Hence, it is expected that an option agreement will have the most profound uncertainty-mitigation effect when the level of political uncertainty increases.

Second, it is conjectured that, in periods of high domestic political uncertainty, acquiring firms' shareholder value will be enhanced with offshore staged acquisitions, while worse off with acquiring domestic targets in one-off payments. Ample anecdotal and empirical evidence suggests that acquirers target offshore assets in an attempt to reduce their exposure to domestic uncertainty (e.g., Hermes and Lensink, 2001; Le and Zak, 2006; Karolyi and Taboada, 2015), because domestic targets inevitably suffer from the same uncertainty shocks as those that acquirers face in their respective home countries (Bonaime et al., 2018). Under such circumstances, a domestic acquisition with a lump-sum payment might even worsen the acquirer's cash flow volatility, making it more vulnerable to high uncertainty and lowering firm value. Nevertheless, although an offshore acquisition can, to some extent, diversify the acquiring firm's exposure to domestic political uncertainty, it is also subject to regulatory, fiscal, and taxation policies in the target country, increasing the acquirer's investment risk (Cao et al., 2019). Thus, an acquirer proposing an offshore acquisition would favour a staged deal structure, which enables the acquiring firm to secure an overseas investment opportunity while retaining flexibility in coping with ex-post uncertainty. Overall, it is argued that an outbound acquisition with staged payments brings most benefits to acquirers subject to domestic high political uncertainty.

The third hypothesized mechanism is the relatively long contract duration in staged acquisitions. Contract theory suggests that longer-term contracts would allow

transaction parties to adapt to changes in the economic environment, with such adaptability being more valuable under conditions of increased uncertainty (Crocker and Masten, 1988; Fudenberg et al., 1990). Cain et al. (2011) provide empirical evidence suggesting that including contingent payments in an acquisition contract allows the total consideration paid to adapt to post-acquisition changes. Therefore, unlike a non-staged acquisition that is a one-off contract at the time of the purchase, a staged transaction with a longer contract duration provides the acquirer with a greater amount of flexibility to cope with uncertainty (e.g., possibility to renegotiate deals). Accordingly, a higher level of political uncertainty is expected to be associated with a longer contract duration in staged acquisitions. The three hypothesized mechanisms are tested in Section 4.

3. Data and descriptive statistics

3.1 Measuring Australian political uncertainty

In this chapter, political uncertainty in Australia is measured using the Australian two-party preferred (TPP) voting intention data. There are two main reasons why the federal voting intention is a good proxy for political uncertainty in Australia. First, researchers often use *ex-ante* polling information, which captures the predictability of the election outcome, to measure the degree of political uncertainty (e.g., Atanassov et al., 2019). This is because election outcomes have implications for industry regulation, trade policy, and taxation (Julio and Yook, 2012) and thus are relevant to corporate decisions. A highly unpredictable election (e.g., both political parties have an equal probability of winning an election) often generates uncertainty or shocks to businesses' expectations about government policy (Snowberg et al., 2007). Hence, the continuous

flow of political news is likely to revise the public and businesses' beliefs about the likelihood of future policy shifts, which in turn affect businesses investment decisions when observing an increased level of political uncertainty (Pastor and Veronesi, 2013).

Importantly, *ex-ante* election polling data has been proved as a good indicator of political uncertainty in the literature. For example, Snowberg et al. (2007) suggest that if an election features a pro- and anti-war candidate, then the economic outlook of defence contractors likely improves when the pro-war candidate's electoral prospects improve. Similarly, Ferguson and Lam (2016) find significantly positive excess returns to uranium firms when the Liberal/National Coalition (with a pro-uranium stance) is leading the Australian Labor Party (with an anti-uranium stance) in the Australian two-party preferred poll. Smales (2016) also uses Australian federal election polling to measure political uncertainty. He shows that increasing levels of uncertainty around the election result induce higher levels of uncertainty in financial markets and, as the primary industry, the base materials sector is most significantly affected by election uncertainty in Australia. Nevertheless, these studies only pay attention to the impact of government policy uncertainty on asset prices. It remains unclear as to how political uncertainty affects managers' real economic decisions (i.e., acquisitions) and whether managers are able to mitigate political uncertainty to protect shareholder interests. Therefore, this chapter answers these questions by utilizing the common proxy for political uncertainty in Australia.

Following prior studies, a time-series index is constructed using the TPP voting intention data from Roy Morgan Research's public opinion polls.[7] Specifically, PU_TPP_t is defined as:

$$PU\_TPP_t = 1 - |Prob(ALP)_t - Prob(LNP)_t|\,, \qquad (1)$$

in which $Prob(ALP)_t$ and $Prob(LNP)_t$ refer to the probability of a federal election win for the two major political parties, Australian Labor (ALP) and the Liberal/National Coalition (LNP), respectively, for a given poll at month *t*. By construction, voting intention for both parties sums to 100 at any point in time (Ferguson and Lam, 2016). Policy uncertainty is maximized when both parties have an equal likelihood of becoming elected (i.e., $Prob(ALP)_t = Prob(LNP)_t = 0.5$). Movement away from the 50/50 split implies that the political uncertainty is reduced.[8] Figure 1 plots the TPP voting intention for ALP and LNP during the sample period of 1998–2017. Before 2010, the Labor party often took a lead, while the introduction of the Mineral Resource Rent Tax in 2010 became a dominant feature of Australia's recent political history and contributed to the demise of two Prime Ministers (Eccleston and Hortle, 2016). Thereafter, the two lines became intermingled more frequently.

[7] Roy Morgan Research is the longest established public opinion polling company in Australia and is independent from ownership by any large media companies. The federal voting poll data is available at http://www.roymorgan.com/morganpoll/federal-voting

[8] See Smales (2016) for details on the calculations of PU_TPP_t. Consider the two-party voting intention poll reported on 16 June 2013 in which the TPP vote was 46.5 for ALP and 53.5 for LNP. $Prob(ALP)$ is calculated using the normal distribution with a mean equal to 50.0 (since this is normally the minimum vote required to claim victory in the election), and a standard deviation over the sample period equal to 10.23 (the standard deviation of the difference in TPP votes for the two parties). Hence, the z-value for $Prob(ALP)$ is –0.342, which equals a success probability of 0.366. Correspondingly, $Prob(LNP)$ is equal to 0.634 and PU_TPP is 0.732 (=1 – |0.366 – 0.634|). If the TPP vote for the ALP increases to 60.5, as it did on 8 June 2014, $Prob(ALP)$ becomes 0.85, $Prob(LNP)$ is 0.15, and PU_TPP declines to 0.30 (=1 – |0.85 – 0.15|) as political uncertainty is greatly reduced.

[Insert Figure 1 here]

3.2 Acquisitions of mining exploration projects

The sample firms consist of Australian Securities Exchange (ASX) listed metals and mining exploration entities from January 1998 to December 2017. The sample selection process starts with all ASX-listed mining firms (*GICS Sector: Materials, GICS industry: Metals & Mining*) from the Morningstar DatAnalysis Premium database. As the focus of this chapter is on MEEs, mining producers are excluded. This is because producers primarily focus on mine management and cash flow maximization, in contrast to MEEs' focus on acquisitions and exploration. MEEs are identified as firms with an annual production revenue less than 15 percent of their market capitalization (Ferguson and Pündrich, 2015). The sample for the empirical analysis in this chapter includes 692 unique MEE acquirers with 7,472 firm-year observations.[9]

Data on project acquisitions are hand-collected from ASX announcements on the Morningstar DatAnalysis Premium database. The first step is to identify all initial announcements of project acquisitions by sample firms if an announcement falls in *Announcement sub-type* "*Acquisition*," or has the following key words in its headline: *"acquire/acquisition*," *"secure opportunity*," *"obtain project*," *"new project*," *"purchase agreement*," *"expand ground/expansion*," *"option agreement*," and *"farm-in agreement*." An acquisition is identified as a staged transaction if it is: (1) a farm-in deal (e.g., a multi-stage acquisition with the acquiring firm's exploration expenditure commitments); (2) an option agreement (e.g., acquiring an option to purchase a project);

[9] Note that the sample of ASX-listed MEEs is also the sample of MEEs with acquisitions. This is because all MEEs in the initial sample have at least one acquisition transaction identified during the sample period. This also indicates the strategic importance of project acquisitions in the mining sector.

(3) an acquisition with contingent payments (e.g., a proportion of total consideration is deferred and conditional on the target achieving certain performance hurdles); or (4) an acquisition with instalment payments (e.g., the total consideration is paid in instalments).[10]

Table 1 reports the distribution of MEE project acquisitions by calendar year (Panel A), by project location and deal structure (Panel B), and by acquisition agreement (Panel C). In total, there are 3,283 project acquisitions announced by ASX-listed MEEs between 1998 and 2017, with 43% being option-like or staged transactions.[11] In Panel A, the total number of MEE project acquisitions increased gradually from 2003 to 2007 and dropped over the period 2008-2009. Meanwhile, the number of non-staged acquisitions dropped by 30% in 2008 during the global financial crisis while staged acquisitions dropped by only 13%, suggesting the adaptability of staged transactions in times of uncertainty. In addition, corresponding to the political uncertainty surrounding the legislation of the Resource Super Profits Tax in Australia during 2011-2012, the use of staged deal structure in MEE project acquisitions rose to as high as 50% of total transactions during that period. This clearly indicates MEEs' preference for staged deal structure when political uncertainty is heightened. Though not a formal test, the pattern revealed in Panel A suggests that acquiring firms may structure acquisitions in stages to manage elevated uncertainty.

[10] See examples of staged acquisition announcements in Appendix 2.

[11] Chapter two utilizes a large sample of option-like transactions that are rarely examined in the literature. A few M&A studies examine the arrangement of contingent payments or earnouts, which is one type of staged acquisition in the sample; however, none of these studies investigate whether earnouts or staged payments in acquisitions could help acquirers manage their exposure to political uncertainty. In these studies, the use of earnouts by US public firms ranges from 3.9% to 9.9% (e.g., Datar et al., 2001; Cain et al., 2011; Bates et al., 2018).

[Insert Table 1 here]

Table 1 Panel B partitions all acquisitions by project location and deal structure. Overall, among the total 3,283 project acquisitions by MEEs in 1998–2017, 37.0% (21.7%) are domestic deals with non-staged (staged) deal structures, and 20.0% (21.3%) are offshore transactions with lump-sum (staged) payments. Panel C lists the four types of option-like or staged acquisitions, which comprise farm-in deals (17%), option agreements (25%), acquisitions with contingent consideration (47%), and acquisitions with instalment payments (11%).

Table 2 Panel A reports summary statistics for the sample firms (in Australian dollars). The mean (median) total assets is $30.2 ($8.5) million and cash holdings of $6.5 ($1.8) million. MEEs have a mean market capitalization of $54.0 million, which is only 5% of the average market capitalization of all listed firms on the ASX; in addition, the median value is $10.5 million.[12] Not surprisingly, most MEEs do not have any significant operating revenue or any cash inflow, as their median operating revenue and operating cash receipts are both zero. They also lack debt financing, evidenced by the median financial leverage ratio (measured as total assets divided by the book value of equity) that is close to one (Ferguson and Lam, 2021). Overall, the firm-level characteristics in Table 2 Panel A suggest that MEEs are typically small, financially constrained firms, thus being susceptible to any heightened levels of uncertainty.

[Insert Table 2 here]

[12] The average market capitalization of listed firms on the ASX is $970 million (as of October 2019). Of the 2,185 ASX-listed stocks, about 33% are junior metals and mining stocks by number, yet the entire listed Materials sector accounts for only 15% of the market capitalization of ASX.

Table 2 Panel B summarizes the deal-level variables used in the analysis. On average, 13% (12%) of MEE project acquisitions are entirely financed by cash (equity). Acquirers earn an average 7% announcement abnormal return with a median return of 2%. Further, nearly 5% of the announced deals are renegotiated (e.g., revising the offer price, extending the scheduled completion date).

3.3 Other variables

Firm annual accounting variables are obtained from the Morningstar DatAnalysis Premium database. Firm-level stock return and daily price data are from Securities Industry Research Corporation Asia Pacific (SIRCA). To control for uncertainty brought about by economic fundamentals, the following macro-level variables are also included: (1) *Federal election,* which controls for uncertainty related to specific Australian federal elections; (2) *Stock market returns* (i.e., the returns on the ASX All Ordinaries Index), which controls for Australian stock market conditions; (3) *Commodity price index* from the Reserve Bank of Australia (RBA), which controls for non-rural commodity price cycles;[13] (4) *Implied volatility*, which represents the VXO index of implied volatility from the Chicago Board Options Exchange (CBOE) and measures general economic uncertainty; [14] and (5) *Exog. EPU*, which captures exogenous economic policy uncertainty in Australia. These macroeconomic data are

[13] The RBA non-rural commodity price index covers bulk commodities (Iron ore, Coal), base metals (Lead, Zinc, and Nickel), and other resources (Gold, Copper ore) (Available at: https://www.rba.gov.au/statistics/). Given that more than 80% of MEE project acquisitions target gold, copper and iron ore, the RBA index is used to capture the potential impact of commodity price fluctuations on MEE project acquisition activities.

[14] The CBOE Volatility Index is used in the analysis because data for the Australian S&P/ASX 200 VIX are only available from 2008 while the sample period in this chapter starts from 1998. Although US focused, the VXO index of implied volatility is widely considered to be the best available estimate of market uncertainty in Australia (e.g., Smales, 2016; Wu et al., 2020).

collected from a variety of sources. The commodity price index is obtained from the Reserve Bank of Australia, and the VXO index of implied volatility and ASX All Ordinaries Index are from Bloomberg. Federal elections data are downloaded from the Australian Politics and Elections Database.[15] The Australian economic policy uncertainty (EPU) index is from Baker, Bloom, and Davis (2016). Firm-level accounting variables are measured in the fiscal year prior to the initial acquisition announcement date. Firm-level stock volatility and past stock return, as well as macro-level variables, are measured in the 12-month period prior to the initial acquisition announcement date. Table 2 Panel C summarizes the political uncertainty index (TPP index) and other macro-level variables. Variable definitions are detailed in Appendix 1.

4. Empirical results

4.1 Real effects of political uncertainty on MEE project acquisitions

The empirical analysis begins with an investigation of the relation between Australian political uncertainty and the likelihood of MEE acquirers engaging in a staged or non-staged acquisition. A multinominal logistic regression approach is employed to examine the acquisition choice of firm *i* in month *t* in the face of political uncertainty: (1) no acquisition, (2) a staged acquisition, and (3) a non-staged acquisition. Firm- and macro-level characteristics that may affect the likelihood of acquisition decisions are also included. The following baseline model is estimated:

$$Acquisition_{i,t} = a + \beta \times PU_{t-1} + \mathrm{F}_{i,t-1} \times \gamma + \mathrm{M}_{\mathrm{t}-1} \times \delta + \varepsilon_{i,t}\ , \qquad (2)$$

[15] The web version of the Australian Politics and Elections Database was launched and updated by the University of Western Australia. Available at: http://elections.uwa.edu.au/

in which $Acquisition_{i,t}$ is a categorical variable that takes a value of 0, 1, or 2 if firm *i* makes no acquisition (the reference category), a staged acquisition, or a non-staged acquisition, respectively, in month *t*. *Political uncertainty (PU)* is measured as the mean of the monthly Australian TPP index over the 12-month period preceding month *t*. **F** is a vector of firm-level control variables commonly used in the acquisitions literature, including *Ln(Total assets)*, *Financial leverage*, *Market-to-book ratio*, *Cash holdings (%)*, *Past stock returns*, and *Firm-level stock volatility*. Following the political uncertainty literature, macro-level factors are also included that may affect acquisition activities or contracting terms. Specifically, **M** is a vector of macro-level control variables, including *Stock market return*, *Commodity price index*, and *Implied volatility*.

To ensure that the findings are not confounded by the effects of federal election timing and policy-related uncertainty, two control variables are added. The first variable is *Federal election,* an indicator that equals one if the deal announcement month *t* is within the 3-month period before a scheduled federal election, and zero otherwise. This variable controls for foreseeable uncertainty related to the timing of Australian federal elections, as election timing is known in advance (Jens and Page, 2020). The second measure is exogenous economic policy uncertainty in Australia (*Exog. EPU*). The Australia economic policy uncertainty index, developed by Baker, Bloom, and Davis (2016), is a news-based index to capture policy-related uncertainty in Australia. Note that political uncertainty is different from policy uncertainty (Nguyen and Phan, 2017). For example, policy uncertainty is directly tied to economic or fiscal policies while political uncertainty has a more profound and longer-term impact. However, there are two major issues employing the EPU index directly in

empirical tests. The EPU index reflects broader uncertainty about economic fundamentals and also captures the impact of most international events (e.g., 9/11, Brexit). Therefore, following Xu (2020), the exogenous component is extracted from the Australian EPU index (*Exog. EPU*) to capture incremental unpredictability about domestic policies beyond domestic economic forces and international shocks.[16] A linear time trend variable is also included (Bonaime et al., 2018). Regression results of the baseline model (equation 2) are reported in Table 3.

[Insert Table 3 here]

Consistent with predictions, the results show that acquirers are more likely to structure acquisitions in stages when political uncertainty rises. The coefficients on *PU* under the category "staged acquisitions" are positive across different model specifications and statistically significant at the 5% level. Specifically, the estimates for Model 2 suggest that, holding other variables fixed at their sample means, a 1-standard-deviation increase in political uncertainty in the last 12 months is associated with an 8.3% increase in the likelihood of an acquirer engaging in a staged acquisition in the following month, controlling for firm- and macro-level characteristics. The inferences still hold after adding the two proxies for the timing of Australian federal elections and domestic economic policies in Model 3. Hence, the results confirm that

[16] Specifically, the monthly Australian EPU index is regressed on the monthly US EPU index and macroeconomic variables as follows: $Aus\ EPU_t = a + \beta_1 US\ EPU_t + \beta_2 ASX\ stock\ return_t + \beta_3 RBA\ Commodity\ price\ index_t + \beta_4 VIX_t + Time\ trend + \varepsilon_t$. The residuals ε_t are used to capture domestic policy-related uncertainty. The residuals are averaged over the 12-month period preceding the deal announcement month *t* and labelled as *Exog. EPU*.

a higher level of political uncertainty motivates acquirers to structure transactions in stages.

The results in Table 3 reveal two further observations. First, firms with higher past stock returns are more likely to engage in non-staged acquisitions. The coefficients of *Firm past stock return* under the category "non-staged deal" are all significantly positive at the 1% level (e.g., in Model 2, coef. = 0.045, *t*-stat = 5.08). One possible explanation for this finding is, given the fact that MEEs mainly rely on external equity financing, acquisition funding is relatively easy for acquirers with good past stock performance. Second, acquirers with higher firm-level volatility tend to negotiate acquisitions in stages, suggesting that MEEs are keen to secure project investment opportunities for external growth. The effects of other control variables on the likelihood of acquisitions are in line with those reported in the prior literature. For instance, there is a positive relation between firm acquisitiveness and *Cash holdings (%), ASX stock market return* and *Commodity price index*. Although the coefficient on firm size is significantly negative, it is unsurprising in this research setting because small-size firms with fewer exploration projects have stronger motivations to grow and thus actively engage in acquisition activities. Overall, the results in Table 3 demonstrate that staged deal structures are preferred by MEE acquirers faced with high political uncertainty.

In further tests, the effect of political uncertainty on MEEs' choice of acquisition deal structure is tracked over time. Following Bonaime et al. (2018), the baseline model (equation 2) is utilized to predict the likelihood of acquirers structuring staged and non-staged acquisitions up to 12 months in the future. Specifically, the dependent variable

$Acquisition_{i,t+j}$ equals 1 or 2 if firm i announces a staged or non-staged acquisition, and equals 0 if there is no acquisition (the reference category), in the leading month $(t + j)$, in which $j \in (1, \dots, 12)$. All explanatory variables are the same as those in Model 2 in Table 3. Estimated coefficients on *PU* from 12 multinominal logistic regressions are reported in Table 4.

[Insert Table 4 here]

The results in Table 4 show that the coefficients on *PU* under the category "staged acquisitions" (row 2) are consistently positive and statistically significant from *t+1* to *t+9*. This finding implies that the likelihood of an acquirer engaging in a staged acquisition is positively linked with political uncertainty for up to three quarters. Estimations of marginal effects indicate that, controlling for firm- and macro-level characteristics, a 1-standard-deviation increase in TPP political uncertainty could lead to as high as a 10.5% increase in the probability of a firm engaging in a staged acquisition at a certain point in time over the ensuing year. A further test considers whether the coefficient on *PU* under the category "staged acquisitions" (row 2) is significantly different from that under "non-staged acquisitions" (row 1) in each of the 12 multinominal logistic regressions, with associated *p*-values from Wald tests reported in row 3. It clearly shows that, in times of high political uncertainty, MEE acquirers' preference for staged deal structure persists for up to month *t+9*. Overall, consistent with predictions, the findings in Tables 3 and 4 indicate that MEE acquirers tend to structure staged transactions when political uncertainty rises.

4.2 Political uncertainty and wealth effect of staged acquisitions

Section 4.1 shows that MEE acquirers are more likely to structure acquisitions in stages in response to high political uncertainty. In this section, wealth effects of staged acquisitions under political uncertainty are examined. The value creation from acquisition transactions is measured using the acquirer cumulative abnormal return (CAR) over a 3-day event window [–1, +1], centered at the deal announcement date. Abnormal returns are market-adjusted returns using equal-weighted daily returns of all ASX-listed stocks as the market benchmark, which is sourced from SIRCA.[17]

Table 5 Panel A reports acquirers' 3-day announcement CAR [–1, +1] of staged and non-staged transactions. For the full sample, column (1) shows that staged (non-staged) deals are met with a positive market reaction of 7.9% (5.1%). This result has important implications. First, MEEs' mining project acquisitions create value for shareholders. This highlights the strategic importance of project acquisitions in MEEs' growth. Second, acquisitions with a staged deal structure (e.g., including earnouts in the payment scheme) perform better than non-staged deals in general. This is consistent with the earnout literature showing that, due to the effectiveness of earnouts to mitigate valuation uncertainty, acquirers using contingent consideration generate significantly higher announcement returns than acquirers using non-earnout payment methods (e.g., Barbopoulos and Sudarsanam, 2012). In a similar vein, it is expected that staged acquisitions would better protect acquirer shareholders' interests when political

[17] As the sample firms are all small-cap firms, the equally-weighted daily returns of all ASX-listed stocks are used to calculate market-adjusted abnormal returns. However, as the SIRCA Databricks database only provides the daily returns of all ASX-listed stocks since 2000, the market benchmark for acquisitions announced before 2000 (less than 3% of the sample acquisition events) is the daily return of the ASX All Ordinaries Index. The results are unchanged when the daily return of the ASX All Ordinaries Index is used as a benchmark for the entire sample period.

uncertainty increases. As suggested by the results in Table 3, MEEs may prefer a one-off payment in a transaction when they have a higher cash holding, better stock performance in the past, and experiencing a rising stock market and commodity market. Under such circumstances, MEEs are willing to give a lump sum payment to quickly seek projects with future economic prospects. However, when facing an increased level of political uncertainty, MEEs are more likely to structure a transaction in stages, which help acquirers mitigate the negative impact on their firm value brought about by political uncertainty.

To gauge the differential impact of political uncertainty on MEE firm value around acquisition announcement dates, the sample is partitioned by the level of political uncertainty before deal announcement dates. If the market considers acquirers' strategies to mitigate uncertainty at the transaction level, then the difference in acquirers' CARs between staged and non-staged deals should vary with different levels of political uncertainty.

[Insert Table 5 here]

There is a discernible increase (decrease) in acquirers' CAR for staged (non-staged) deals when political uncertainty rises. The trend exhibited in Table 5 Panel A suggests that the stock market rewards staged acquisitions to a greater extent when political uncertainty heightens. Specifically, results in column (2) show that when the level of political uncertainty is ranked in the bottom quartile during the sample period, there is no significant difference in acquirers' announcement CAR between staged and non-staged acquisitions. The difference then becomes larger and statistically significant when political uncertainty increases. In column (4), in periods when the

level of political uncertainty is ranked in the top quartile, the average announcement CAR of staged acquisitions is 0.039 higher than that of non-staged acquisitions, and the difference is statistically significant at the 5% level. This finding indicates that acquirers' shareholder value improves with a staged deal structure for acquisitions under higher political uncertainty. Thus, Table 5 Panel A provides preliminary evidence suggesting that the stock market does consider acquirers' uncertainty mitigation strategy at the transaction level.

To control for various factors that may also influence acquirers' announcement returns, a regression framework is employed to test how acquisition deal structure affects the value creation of acquisitions under political uncertainty. Specifically, acquirers' 3-day announcement CAR is regressed on political uncertainty, acquisition deal structure, and their interaction term, as well as controlling for deal-, firm- and macro-level characteristics. The estimation results are presented in Table 5 Panel B.

Consistent with Adra et al. (2020), the coefficient on *PU* is significantly negative in column (1) (coef. = – 0.072, *t*-stat = – 2.63), suggesting that acquirers proceeding with deals under high political uncertainty cause a decrease in shareholder value. Of interest is the coefficient on the interaction term *PU* × *Staged deal*, which captures the incremental effect of staged deal structure on acquiring firms' value when political uncertainty increases. Based on the univariate analysis in Panel A, the coefficient of interest is expected to be significantly positive because, as argued above, staged deal structure provides acquirers with flexibility in dealing with future uncertainty and the stock market does consider acquirers' uncertainty mitigation strategy at the transaction level. Consistent with predictions, the positive and significant coefficient on the

interaction term *PU* × *Staged deal* is obtained (coef. = 0.099, *t*-stat = 2.58), which indicates that a staged deal structure is able to offset the adverse impact of political uncertainty. The results still hold when additional proxies for uncertainty are added in column (2). The coefficient on *PU* × *Staged deal* in column (2) remains positive and significant at the 1% level. Overall, the regression results in Panel B echo the univariate analysis in Panel A; that is, market participants tend to reward acquirers equipped with uncertainty-mitigating tools when observing a higher level of political uncertainty.

As a robustness check, Table 5 Panel C shows that the inferences are robust to (1) including year indicators to control for variation across years in how deals are structured (column 1), (2) excluding terminated or failed transactions (column 2), and (3) including interaction terms between *Staged deal* and all other explanatory variables (column 3). Together, the results in Table 5 present robust evidence that the adverse impact of political uncertainty on acquisitions is largely moderated when acquirers structure transactions in stages.[18]

4.3 Economic mechanisms underlying the mitigating effect of staged deal structure

The results thus far demonstrate that staged deal structure could help acquirers mitigate the cost of political uncertainty. The objective of this section is to explore the empirical validity of the proposed economic mechanisms underlying the advantages of staged deal structure under uncertainty.

[18] Note that deal value is not included in model specifications. This is due to difficulties in obtaining or calculating the deal value of option-like acquisitions. For example, the values of earnout payments are often missing in initial acquisition announcements (e.g., Cain et al., 2011).

4.3.1 Ease of deal abandonment

The first hypothesized mechanism is the relatively low abandonment cost of multi-stage acquisitions compared to that of non-staged deals. As discussed in Section 2.3, one advantage of staged investment is the low cost of abandonment if management is not willing to proceed with a deal in bad states (Marmer and Slade, 2018). Hence, it is expected that transactions with a lower exit cost may be favoured more highly by acquirers in times of heightened uncertainty (e.g., an option agreement to purchase a project).

To test this prediction, a categorical variable, *Deal agreement*, is introduced to represent four types of deal agreements in staged acquisitions. *Deal agreement* =0, 1, 2, 3, or 4 if the announced acquisition is a non-staged transaction (reference category), a farm-in deal, an option agreement, an acquisition with contingent consideration, and an acquisition with instalment payments, respectively. The acquirer CAR cross-sectional regression is estimated using the categorical variable *Deal agreement* and its interaction with *PU*. Of interest are the coefficients on the interaction term, *PU* × *Deal agreement*, which capture the different magnitudes of the uncertainty-mitigation effects of staged transactions with different types of agreements. The coefficients of interest are presented in column (1) in Table 6. In column (2), to further measure the impact of deal structures on acquirer shareholder value in extreme circumstances, *PU* is changed to an indicator variable that equals 1 if the level of pre-announcement political uncertainty is ranked in the top quartile during the entire sample period, and 0 otherwise.

[Insert Table 6 here]

As expected, the coefficients on *PU* × *Option transaction* are significantly positive in both models. Due to the small option fee and the absence of both definitive acquisition agreements and deal protection mechanisms in option deals, retracting such a transaction is less costly than withdrawing from other types of transactions. Thus, this type of acquisition agreement could effectively protect shareholder value under high political uncertainty.[19] Therefore, the results in Table 6 provide empirical support for the good news principle; that is, the value of staged investment under uncertainty arises partly from the possibility of an abandonment with little cost.

4.3.2 The location of acquisition targets

The next examination is whether the uncertainty-mitigation effect of a staged deal structure exists in both domestic and outbound acquisitions. To this end, the acquisition sample is split into four groups based on project location (domestic, offshore) and deal structure (non-staged, staged). Next, the acquirer 3-day announcement CAR is regressed on *PU* and other controls for the four separate subgroups: (1) domestic non-staged acquisitions, (2) domestic staged acquisitions, (3) offshore non-staged acquisitions, and (4) offshore staged acquisitions. The estimated coefficients on *PU* from the four regressions are reported in Table 7 columns (1) – (4), respectively.

[Insert Table 7 here]

[19] An alternative and more direct proxy for acquisition abandonment cost is termination fee. Prior studies show that as a deal protection mechanism, termination fees have a positive effect on the probability of deal completion (e.g., Bates and Lemmon, 2003). However, the term of the termination fee is rarely observed in MEE project acquisition announcements. Rather, most option transactions state that the buyer can withdraw from the option agreement at any time (see the announcement of an option transaction by Magma Metals Limited (MMW) in 2011 in Appendix 2). Therefore, due to the inherent nature of option-like transactions in the mining sector and also due to data unavailability, termination fees are unable to be used as a proxy for the ease of deal abandonment.

Results in Table 7 have two important implications. First, when domestic political uncertainty increases, the stock market tends to penalize acquirers that do not employ any effective tools to manage their exposure to political uncertainty (e.g., acquiring a domestic target with a one-off payment). The coefficient on *PU* in column (1) (coef. = –0.080, *t*-stat = –2.14) indicates that shareholders of MEEs making domestic irreversible investments are worse off when the voting intentions between the two major political parties narrow (i.e., higher political uncertainty). In contrast, investors reward acquirers that gain deal-level flexibility by structuring their transactions in stages and diversify domestic political risks by investing overseas (e.g., outbound staged transactions). The coefficient on *PU* is significantly positive in column (4) for offshore staged deals (coef. = 0.117, *t*-stat = 2.42). Most noticeably, the coefficient on *PU* in column (4) is 0.197 higher than that in column (1), and this difference is statistically significant at the 1% level. This finding confirms that the stock market reacts favourably to MEE acquirers' investment decisions equipped with uncertainty-mitigation tools.

Another important implication is that the upside of staged deal structure does exist in both domestic and offshore acquisitions. The coefficient on *PU* in column (2) is significantly higher than that in column (1). This suggests that, although domestic targets are exposed to the same political uncertainty as acquirers, staged deal structures still help prevent acquirer shareholder value from being seriously destroyed. Similarly, the coefficient on *PU* in column (4) is significantly higher than that in column (3), indicating that acquirers create greater shareholder value when payments of offshore acquisitions are made in stages rather than realized in a lump sum payment. Overall,

Table 7 provides novel evidence showing that acquisition deal structure mitigates political uncertainty in both domestic and overseas transactions.

4.3.3 Contract duration of staged acquisitions

The third hypothesized mechanism through which staged deal structures reduce acquirers' exposure to uncertainty is relatively long contract duration. Contract theory argues that contracts with longer terms allow transaction parties to adapt to ex-post changes in the economic environment, and such adaptability is more valuable in a more uncertain environment (Crocker and Masten, 1988; Fudenberg et al., 1990). It is expected that the longer the contract duration of staged payments, the greater the flexibility afforded to the acquiring firm in dealing with ex-post uncertainty.

To test this prediction, one should ideally model the duration of a staged acquisition contract as a function of political uncertainty, controlling for firm- and macro-level characteristics. However, there is insufficient disclosure on the total length of time for all tranche payments in staged acquisitions for a number of observations. One main reason for the lack of disclosure is that future payments in staged acquisitions are sometimes triggered by the achievement of project milestones, such as the completion of a feasibility study, which can take a long time in the mining industry. It is thus difficult for transaction parties to specify the project duration or time horizon in meeting predetermined performance hurdles. Therefore, the length of time (in months) for the first-stage payment or granted option period is regressed on political uncertainty, as the information for the first-stage duration is most readily available in acquisition announcements. Regression results are reported in Table 8. The test samples in

columns (1) – (3) are the full sample of staged deals, domestic staged deals, and offshore staged deals, respectively.

[Insert Table 8 here]

Consistent with predictions, the results in column (1) in Table 8 suggest that a higher level of political uncertainty generally leads to a longer contract duration. The coefficient on *PU* in column (1) is statistically significant at the 10% level. By further dividing the test sample into domestic and offshore acquisitions, the positive link between political uncertainty and contract duration is only observed in domestic staged transactions. Specifically, the coefficient estimate in column (2) indicates that, holding other variables constant at their sample means, a 1-standard-deviation increase in domestic political uncertainty will lead to a 5-month longer duration for the first-stage payment or option period in domestic staged deals. This finding is economically important given that the median contract term of the first tranche payment is one year. Interestingly, the contract duration of offshore staged acquisitions is not affected by domestic political uncertainty. Rather, it is negatively associated with firm *Financial leverage*, *Firm-level volatility*, *ASX stock market return*, *Commodity price*, and *Implied volatility*. The results in column (3) imply that the contract duration of offshore staged deals is more likely affected by acquirers' concerns over fundamental economic shocks.

After documenting the direct link between political uncertainty and contract duration in staged acquisitions, the impact of political uncertainty on the actual deal completion time is also assessed. Anecdotal observations suggest that MEE acquirers

extend the original deal completion date or option period due to rising uncertainty.[20] If political uncertainty leads to a longer contract duration, which provides the buyer the possibility of deal renegotiation, then a rise in political uncertainty after the initial deal announcement would result in (1) a higher likelihood of deal renegotiation, and, correspondingly, (2) a longer deal completion time. This prediction is also supported by the theoretical work of Hotchkiss et al. (2017), which argue that the arrival of new information during the post-announcement period incentivises transaction parties to renegotiate an initial acquisition contract.

To test this prediction, the likelihood of deal renegotiation and the actual deal completion time is regressed on changes in political uncertainty during the post-announcement period. Results are reported in Table 9. In column (1), the dependent variable *Deal renegotiation* is an indicator variable, which equals 1 if the announced deal is renegotiated (e.g., revising offer price, extending the scheduled completion dates), and 0 otherwise. The dependent variable in column (2) is *Ln(1 + Actual completion time)*, which is the natural log of one plus the duration (in months) between the initial deal announcement date and the date when the acquirer exercised the acquired option or completed the first-stage payment. *Δ%PU* is to measure the percentage change in the TPP political uncertainty index between the initial deal announcement date and the announcement date for when an acquirer completes the first-stage payment or exercises the purchased option.

[Insert Table 9 here]

[20] See Appendix 2 for an example of an acquirer announcing an extension of the original deal completion date.

The results in Table 9 show that a rise in political uncertainty during the post-announcement period is associated with a higher likelihood of deal renegotiation. The coefficient on *Δ%PU* in column (1) in Table 9 is significantly positive (coef. = 0.010, *t*-stat = 2.16), controlling for firm- and macro-level characteristics. As expected, a positive coefficient on *Δ%PU* is documented in column (2) (coef. = 0.012, *t*-stat = 7.65), implying that rising political uncertainty delays the completion of the first tranche payment or the exercise of the acquired option. Therefore, the findings are consistent with predictions that a longer contract duration provides the buyer a greater amount of adaptability in uncertain times. Nevertheless, caution is advised when interpreting the results in Tables 8 and 9, which are based on the length of time for the first stage payment or option period in staged acquisitions, rather than the entire contract duration, due to data availability. This limitation may affect the inferences in Section 4.3.3.

5. Conclusion

This chapter examines how firms alter acquisition deal terms to mitigate exposure to political uncertainty. Based on a large hand-collected sample of project acquisitions by Australian MEEs from 1998 to 2017, robust evidence is presented showing that staged acquisitions enable acquirers to address the negative impact of political uncertainty.

Consistent with the "good news principle", the findings in this chapter suggest that staged deal structures are advantageous under rising political uncertainty. This is because acquisitions proceeding in stages have option-like characteristics, such as securing growth opportunities and time-to-build considerations. Also, the stock market reacts more favourably to staged deals as opposed to non-staged deals when a higher

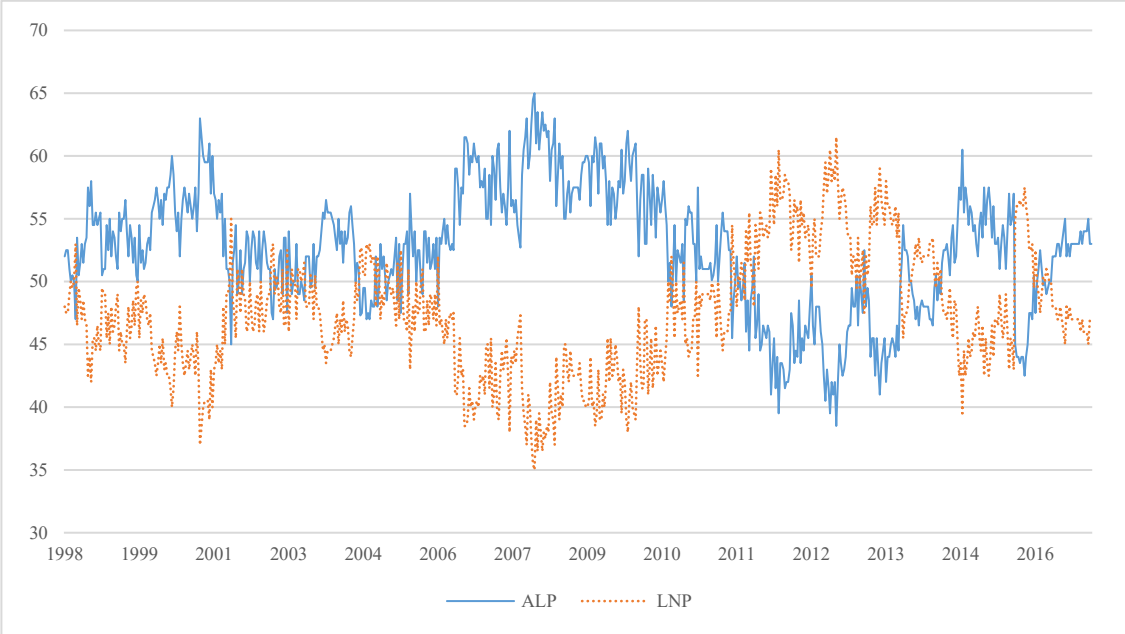
level of political uncertainty is observed. This evidence implies that market participants do consider acquirers' uncertainty-mitigation strategies at the transaction level. Beyond documenting the effect of political uncertainty on acquisition activities, this chapter further outlines and empirically validates three (not mutually exclusive) channels through which staged deals help offset uncertainty-related costs: low abandonment costs, the acquiring of offshore targets, and long contract duration.

Overall, the first essay sheds new light on a previously unrecognized uncertainty-mitigation strategy in acquisitions. It also contributes to the literature examining how firms' investment decisions respond to high political uncertainty. Given that heightened political uncertainty is currently experienced in many parts of the world, these findings have broader implications for risk management in corporate investment, particularly for small firms.

Main Tables

Figure 1. Political uncertainty measure–TPP voting intention

This figure plots the two-party preferred (TPP) voting intention for the Australian Labour party (ALP) and the Liberal/National Coalition (LNP) between January 1998 and December 2017.



Source: Roy Morgan Federal Poll

Table 1. Distribution of project acquisitions by mining exploration entities

This table reports the distribution of project acquisitions by ASX-listed mining exploration entities (MEEs) for the sample period 1998-2017 by calendar year (Panel A), by project location and deal structure (Panel B), and by acquisition agreement (Panel C). Data on project acquisitions are hand-collected from acquirers' announcements on the Morningstar DatAnalysis Premium database. An acquisition is identified as a staged transaction if it is: (1) a farm-in deal (e.g., a multi-stage acquisition with acquiring firms' exploration expenditure commitments); (2) an option agreement (e.g., acquiring an option to purchase a project); (3) an acquisition with contingent payments (e.g., a proportion of total consideration is deferred and conditional on the target achieving certain performance hurdles); or (4) an acquisition with instalment payments (e.g., the total consideration is paid in instalments).

Panel A. Distribution of acquisitions by calendar year

Year	No. of project acquisitions	Non-staged	%	Staged	%
1998	30	12	40.0	18	60.0
1999	46	25	54.3	21	45.7
2000	58	36	62.1	22	37.9
2001	40	26	65.0	14	35.0
2002	59	35	59.3	24	40.7
2003	95	57	60.0	38	40.0
2004	138	78	56.5	60	43.5
2005	155	92	59.4	63	40.6
2006	182	110	60.4	72	39.6
2007	298	183	61.4	115	38.6
2008	228	128	56.1	100	43.9
2009	210	125	59.5	85	40.5
2010	276	169	61.2	107	38.8
2011	281	146	52.0	135	48.0
2012	234	117	50.0	117	50.0
2013	175	97	55.4	78	44.6
2014	176	97	55.1	79	44.9
2015	126	70	55.6	56	44.4
2016	261	147	56.3	114	43.7
2017	215	121	56.3	94	43.7
Total	3283	1871	57.0	1412	43.0

Panel B. Distribution of acquisitions by project location and deal structure

	Domestic (A)	*Offshore* (B)	
Non-staged (I)	N=1,214 *(37.0%)*	N=657 *(20.0%)*	Total=1,871 *(57.0%)*
Staged (II)	N=711 *(21.7%)*	N=701 *(21.3%)*	Total=1,412 *(43.0%)*
	Total=1,925 *(58.6%)*	Total=1,358 *(41.4%)*	

Panel C. Distribution of staged acquisitions by transaction type

Transaction type of staged acquisitions	N	%
1. Farm-in agreements (e.g., acquisitions with acquiring firms' exploration expenditure commitments)	242	17%
2. Option agreements (e.g., acquiring an option to purchase a project)	354	25%
3. Acquisitions with contingent consideration (e.g., a proportion of total consideration is deferred and conditional on the target achieving certain performance hurdles)	662	47%
4. Acquisitions with instalment payment (e.g., the total consideration is paid in instalments)	154	11%
Total	1,412	100%

Table 2. Summary statistics

This table summarizes acquiring firm characteristics (Panel A), transaction-level characteristics (Panel B), and political uncertainty measure and macro-level variables (Panel C). The sample firms consist of ASX-listed mining exploration firms in the Morningstar Premium DatAnalysis database from 1998 to 2017. Variable definitions are detailed in Appendix 1.

Panel A. Firm-level variables

	mean	median	sd	p10	p90	# of firm-year
Total assets ($m)	30.17	8.53	129.81	1.60	51.59	7422
Cash holdings ($m)	6.50	1.76	27.96	0.15	10.97	7422
Cash holdings (%)	32.27	22.64	29.17	2.19	81.66	7422
Market cap ($m)	53.99	10.50	464.74	2.20	80.53	7422
Operating revenue ($m)	1.00	0.00	18.00	0.00	0.11	7422
Operating cash receipts ($m)	0.70	0.00	7.30	0.00	0.21	7422
Market-to-book ratio	2.12	1.41	58.57	0.32	5.99	7422
Financial leverage	1.17	1.06	4.17	1.01	1.54	7422

Panel B. Deal-level variables

	mean	p50	sd	p10	p90	count
All cash (0, 1)	0.13	0.00	0.33	0.00	1.00	3283
All equity (0, 1)	0.12	0.00	0.32	0.00	1.00	3283
CAR (–1, +1)	0.07	0.02	0.22	-0.12	0.28	3283
Renegotiation (0, 1)	0.05	0.00	0.22	0.00	0.00	3283
For subsample tests:						
Contract duration (in months)	22	15	18.44	3	48	815

Panel C. Political uncertainty and macro-level variables

	mean	median	sd	p10	p90	# of sample months
Political uncertainty	0.67	0.70	0.16	0.39	0.86	240
ASX stock market return (%)	0.42	0.62	1.22	-0.94	1.63	240
Commodity price index	84.17	88.45	31.42	44.97	130.11	240
Implied volatility	20.80	21.82	6.24	13.06	27.77	240
Federal election (0/1)	0.12	0.00	0.32	0.00	1.00	240
Exog. EPU	-0.16	-1.81	14.99	-16.13	17.38	228

Table 3. Political uncertainty and acquisition likelihoods

The table presents results from multinominal logistic regressions of acquisition likelihoods on Australian political uncertainty. The dependent variable, $Acquisition_{i,t}$, is a categorical variable, which takes a value of 0, 1, or 2 if firm *i* makes no acquisition (the reference category), a staged acquisition, or a non-staged acquisition in month *t*, respectively. A staged acquisition is identified if the announced transaction is: (1) a farm-in deal; (2) an option agreement; (3) an acquisition with contingent payments, and (4) an acquisition with instalment payments. Political uncertainty or *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding month *t*. The sample firms consist of ASX-listed mining exploration entities in 1998–2017. Variable definitions are detailed in Appendix 1. Standard errors are clustered by firm and year-month. *z* -statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Acquisition=0,1,2

	Model 1		Model 2		Model 3	
	(1)	(2)	(3)	(4)	(5)	(6)
(Reference Category: Acquisition=0)	Non-staged deal	Staged deal	Non-staged deal	Staged deal	Non-staged deal	Staged deal
PU	**0.124**	**0.383****	**0.061**	**0.503****	**0.215**	**0.496****
	(0.85)	**(2.22)**	**(0.33)**	**(2.24)**	**(1.13)**	**(2.11)**
Firm-level						
Ln(Total assets)	-0.050***	-0.074***	-0.058***	-0.084***	-0.062***	-0.088***
	(-3.30)	(-4.28)	(-3.70)	(-4.68)	(-3.96)	(-4.83)
Financial leverage	0.001	0.003	0.000	0.004	0.002	0.007
	(0.12)	(0.57)	(0.09)	(0.60)	(0.44)	(1.36)
Market-to-book ratio	-0.000	0.000	-0.000	-0.000	-0.000	-0.000
	(-0.54)	(0.22)	(-0.66)	(-0.04)	(-0.86)	(-0.88)
Cash holdings (%)	0.004***	0.007***	0.004***	0.007***	0.004***	0.007***
	(5.48)	(7.70)	(5.11)	(7.35)	(4.79)	(7.35)
Firm-level volatility	0.009	0.044*	0.018	0.053**	0.018	0.053**
	(0.56)	(1.86)	(1.17)	(2.23)	(1.16)	(2.25)
Firm past stock return	0.050***	0.006	0.045***	0.001	0.043***	0.001
	(5.93)	(0.41)	(5.08)	(0.05)	(4.79)	(0.09)
Macro-level						
ASX stock market return			6.261***	5.514**	5.443**	5.615**
			(2.88)	(2.12)	(2.50)	(2.14)
Commodity price index			0.003**	0.004**	0.004***	0.004***
			(2.37)	(2.56)	(2.59)	(2.64)
Implied volatility			-0.004	0.001	-0.004	0.001
			(-0.71)	(0.21)	(-0.65)	(0.16)
Federal election					0.108	-0.019
					(0.82)	(-0.10)
Exog. EPU					-0.003*	-0.001
					(-1.92)	(-0.39)
Time trend			-0.002***	-0.002***	-0.002***	-0.002***
			(-3.08)	(-2.82)	(-3.20)	(-2.69)
N	74,794		74,794		73,683	

Table 4. The effect of political uncertainty on staged acquisitions over time

This table presents results from multinominal logistic regressions of acquisition likelihoods over time on Australian political uncertainty. The dependent variable, $Acquisition_{i,t+j}$, equals 1 or 2 if firm *i* announces a staged or non-staged acquisition, and 0 if no acquisition (the reference category), in the leading month $t+j$, in which $j \in (1,\cdots,12)$. A staged acquisition is identified if the announced transaction is: (1) a farm-in deal; (2) an option agreement; (3) an acquisition with contingent payments; and (4) an acquisition with instalment payments. Political uncertainty or *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding month *t*. Coefficients on *PU* from 12 regressions are reported, corresponding to lags 1 through 12 between the dependent and independent variables. *p*-values reported in row (3) are obtained from Wald tests that test if the difference between the coefficients under categories 'Non-staged' (row 1) and 'Staged' (row 2) in each of the 12 multinominal logistic regressions is zero. Control variables are the same as those in model (2) in Table 1. Variable definitions are detailed in Appendix 1. Standard errors are clustered by firm and year-month. *z*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variables: Acquisition =0, 1 or 2 in month t+1,...t+12											
	t+1	*t+2*	*t+3*	*t+4*	*t+5*	*t+6*	*t+7*	*t+8*	*t+9*	*t+10*	*t+11*	*t+12*
(1) Non-staged												
PU	-0.007	0.044	0.076	0.089	0.091	0.080	0.059	-0.011	-0.065	-0.170	-0.198	-0.227
	(-0.04)	(0.25)	(0.43)	(0.49)	(0.50)	(0.44)	(0.32)	(-0.06)	(-0.35)	(-0.92)	(-1.06)	(-1.21)
(2) Staged												
PU	0.570***	0.684***	0.733***	0.759***	0.688***	0.644***	0.629***	0.485**	0.425**	0.274	0.210	0.076
	(2.73)	(3.25)	(3.49)	(3.59)	(3.24)	(3.04)	(2.95)	(2.28)	(1.98)	(1.27)	(0.97)	(0.35)
(3) Testing (1) vs. (2)												
***p*-value**	**0.02****	**0.01****	**0.01*****	**0.02****	**0.03****	**0.02****	**0.02****	**0.05***	**0.08***	0.11	0.15	0.30
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	74018	73590	73157	72715	72267	71810	71342	70865	70378	69878	69378	68876

Table 5. Political uncertainty and acquirer announcement CAR

This table reports evidence of the relation between political uncertainty and acquirer announcement CAR. Panel A presents summary statistics of acquirers' 3-day cumulative abnormal returns (CAR) for MEE project acquisition announcements, centered on the announcement day. Abnormal returns are market-adjusted returns using SIRCA equally-weighted daily market returns of all ASX-listed stocks as the market benchmark. The sample is split into three groups in columns (2) – (4) by the level of TPP political uncertainty before the date of initial deal announcements. *t*-statistics are in parentheses for testing the hypothesis that the average acquirers' announcement CAR is zero. A two-sample *t*-test is conducted to test the difference in acquirers' CAR between staged and non-staged deals. The associated *p*-values are reported in square brackets in row (3). Panel B reports results from CAR cross-sectional regressions, and Panel C reports robustness checks. In all models, the dependent variable is acquirers' 3-day announcement CAR. Political uncertainty or *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding the acquisition announcement date. *t*-statistics in Panels B and C are in parentheses and based on standard errors adjusted for heteroskedasticity. Variable definitions are detailed in Appendix 1. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Summary of acquirers' CAR[-1,+1] around deal announcements

	(1)	(2)	(3)	(4)
Deal structure	Full sample	Lowest quartile of PU	Middle	Highest quartile of PU
(1) Staged	0.079***	0.063***	0.086***	0.085***
	(13.61)	(7.33)	(9.87)	(5.95)
(2) Non-staged	0.051***	0.055***	0.051***	0.046***
	(12.18)	(8.56)	(7.35)	(6.03)
(3) Diff. = Staged – Non-staged	**0.028*** **	**0.008**	**0.035*** **	**0.039** **
p-value	**[0.00]**	**[0.45]**	**[0.00]**	**[0.02]**

Panel B. Political uncertainty and acquirer announcement CAR

	Dependent variable: acquirer announcement CAR[-1,+1]	
	(1)	(2)
	Model 1	Model 2
PU	-0.072***	-0.056**
	(-2.63)	(-1.97)
PU × Staged deal	**0.099****	**0.104*****
	(2.58)	**(2.69)**
Staged deal	-0.041	-0.043
	(-1.63)	(-1.62)
Controls		
All cash	0.039***	0.038***
	(2.86)	(2.75)
All equity	0.042***	0.043***
	(3.38)	(3.42)
Ln(Total assets)	-0.028***	-0.028***
	(-7.14)	(-7.13)
Financial Leverage	-0.001	-0.001
	(-0.62)	(-0.61)
Market-to-book ratio	0.000	0.000
	(0.59)	(0.60)
Cash Holdings	0.000*	0.000
	(1.72)	(1.61)
Firm-level Volatility	-0.001	-0.001
	(-0.58)	(-0.62)
Past Stock Return	-0.005**	-0.005**
	(-2.49)	(-2.53)
Stock Market Return	-0.751**	-0.851**
	(-2.07)	(-2.27)
Commodity Price Index	0.000*	0.000*
	(1.74)	(1.80)
Implied Volatility	-0.001*	-0.001*
	(-1.94)	(-1.70)
Federal election		0.021
		(1.06)
Exog. EPU		-0.000
		(-1.47)
Constant	0.537***	0.523***
	(7.40)	(7.17)
Adj-R^2	0.046	0.047
N	3283	3253

Panel C. Robustness check

Dependent variable: acquirer announcement CARs[-1,+1]			
	(1) Full sample	(2) Completed deals	(3) Full sample with all interaction terms
PU × Staged deal	**0.102***** **(2.66)**	**0.092**** **(2.24)**	**0.103**** **(2.09)**
Controls	Yes	Yes	Yes
Year FE	Yes	Yes	Yes
Adj-R^2	0.052	0.051	0.067
N	3253	2966	3253

Table 6. Different choices of staged deal structures and acquirer shareholder value
This table reports results from regressing acquirers' announcement CAR on political uncertainty, transaction types, and their interaction terms, as well as controlling for deal-, firm-, and macro-level characteristics. *Deal agreement* is a categorical variable that represents different types of deal agreements in staged acquisitions. *Deal agreement* = 0, 1, 2, 3, or 4 if the announced acquisition is a non-staged transaction, a farm-in deal, an option agreement, an acquisition with contingent consideration, or an acquisition with instalment payment, respectively. In column (1), *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding month *t*. In column (2), *High PU* equals 1 if the level of pre-announcement TPP political uncertainty is ranked in the top quartile during the entire sample period, and 0 otherwise. Other variables are the same as those in Model 2 in Table 5 Panel B. Variable definitions are detailed in Appendix 1. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: acquirer announcement CAR[-1,1]		
	(1) *PU*	(2) *High PU*
PU × 1.Farm-in deal	0.1205**	-0.0085
	(2.31)	(-0.33)
PU × 2.Option transaction	**0.1187***	**0.0791****
	(1.75)	**(2.15)**
PU × 3.Contingent consideration	0.0901*	-0.0191
	(1.73)	(-0.84)
PU × 4.Instalment payments	0.0112	0.0164
	(0.10)	(0.20)
Controls	Yes	Yes
Year FE	Yes	Yes
Adj-R^2	0.055	0.053
N	3,253	3,253

Table 7. Location of targets and acquirers' shareholder value under domestic political uncertainty

This table reports results from cross-sectional regressions of acquirer announcement CAR in four subgroups. The dependent variable is the acquirer 3-day market-adjusted abnormal return centered on the deal announcement day. Political uncertainty or *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding the acquisition announcement date. The subgroups in columns (1) – (4) are domestic non-staged, domestic staged, offshore non-staged, and offshore staged acquisitions, respectively. Control variables are the same as those in Table 5 Panel B. Variable definitions are detailed in Appendix 1. *t*-statistics are in parentheses under the reported coefficients and based on standard errors adjusted for heteroskedasticity. *p*-value from Wald tests reported in square brackets are for testing the hypothesis that the difference between regression coefficients on *PU* is zero. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable: acquirer announcement CAR				
	(1) Domestic non-staged acquisitions	(2) Domestic staged acquisitions	(3) Offshore non-staged acquisitions	(4) Offshore staged acquisitions	(4)–(1) *Diff.* *p*-value
PU	-0.080**	-0.049	-0.046	0.117**	**0.197*****
	(-2.14)	(-2.14)	(-0.94)	(2.42)	**[0.00]**
		(2) – (1)		*(4) – (3)*	
Diff.		**0.031***		**0.163****	
p-value		**[0.08]**		**[0.02]**	
Controls	Yes	Yes	Yes	Yes	
Year FE	Yes	Yes	Yes	Yes	
Adj-R^2	0.026	0.069	0.050	0.128	
N	1,214	711	657	701	

Table 8. Political uncertainty and contract duration in staged acquisitions
This table reports results of regressing acquisition contract duration in staged acquisitions on political uncertainty. The dependent variable is the natural logarithm of the contracted length of time (in months) for the first-stage payment or option period in staged acquisitions. Political uncertainty or *PU* is measured as the mean of the Australian TPP index over the 12-month period preceding the acquisition announcement date. Other control variables are defined in Appendix 1. In all model specifications, standard errors are clustered by firm and year-month. *t*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Ln(contract duration of first-stage payment)

	(1) Full sample	(2) Domestic deals	(3) Offshore deals
PU	**1.172***	**1.894****	**-0.405**
	(1.79)	**(2.14)**	**(-0.40)**
Controls			
Ln(Total assets)	0.110***	0.106**	0.106**
	(3.40)	(2.30)	(2.19)
Financial leverage	-0.017	0.037	-0.055**
	(-0.79)	(0.62)	(-2.37)
Market-to-book ratio	0.002	0.003	0.005
	(0.60)	(0.24)	(1.60)
Cash Holdings (%)	0.003**	0.007***	0.000
	(2.36)	(3.53)	(0.08)
Firm-level volatility	-0.047**	-0.071	-0.061***
	(-2.34)	(-0.69)	(-2.86)
Past stock return	0.002	-0.008	0.032
	(0.08)	(-0.15)	(1.20)
ASX stock market return	-5.325	-0.314	-13.113*
	(-0.96)	(-0.04)	(-1.70)
Commodity price index	-0.008	-0.003	-0.022*
	(-0.84)	(-0.21)	(-1.70)
Implied volatility	0.007	0.067*	-0.084**
	(0.27)	(1.92)	(-2.10)
Federal election	-0.074	-0.411	0.349
	(-0.25)	(-1.25)	(0.68)
Exog. EPU	0.001	0.002	-0.001
	(0.46)	(0.75)	(-0.25)
Constant	0.011	-2.361	4.466**
	(0.01)	(-1.57)	(2.48)
Year indicators	Yes	Yes	Yes
Adj-R^2	0.013	0.025	0.001
N	815	417	387

Table 9. Political uncertainty, deal renegotiation, and completion time
This table reports the results of regressing the likelihood of deal renegotiation (column 1) and the actual deal completion time (column 2) on changes in political uncertainty during the post-announcement period. The dependent variable in column (1) is an indicator variable that equals 1 if the announced deal is renegotiated, and 0 otherwise. The dependent variable in column (2) is the natural logarithm of one plus the actual deal closing time (in months), which is the duration between the date of the initial acquisition announcement and the date when acquirers completed the first tranche payment or exercised the acquired option. *%ΔPU* is the relative change in the TPP political uncertainty index during the post-announcement period of an acquisition. Other control variables are detailed in Appendix 1. In all model specifications, standard errors are clustered by firm and year-month. *t*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent var.	(1) *Deal renegotiation (0, 1)*	(2) *Ln(1+Actual deal closing time)*
Δ%PU	**0.010****	**0.012*****
	(2.16)	**(7.65)**
Controls		
All cash	0.362	-0.030
	(1.47)	(-0.41)
All equity	-0.335	-0.252***
	(-1.14)	(-3.74)
Ln(Total assets)	-0.295***	-0.045**
	(-3.29)	(-2.25)
Financial Leverage	-0.031	-0.004
	(-0.40)	(-0.87)
Market-to-book ratio	-0.007	0.000
	(-0.36)	(0.44)
Cash Holdings (%)	-0.007*	0.001
	(-1.78)	(1.00)
Firm-level volatility	0.100**	0.008
	(2.53)	(0.72)
Past stock return	-0.014	-0.009
	(-0.35)	(-1.16)
Δ% ASX stock market return	0.000	-0.000
	(0.10)	(-0.66)
Δ% Commodity price index	0.001	0.013***
	(0.08)	(3.97)
Δ% Implied volatility	-0.003	0.002
	(-0.37)	(0.91)
Δ% Exog. EPU	-0.000	0.000***
	(-0.39)	(2.90)
Federal election	-0.128	-0.134
	(-0.30)	(-1.56)
Year indicators	Yes	Yes
Pseudo /Adj. R^2	0.066	0.132
N	1,000	1,000

Appendices

Appendix 1. Variable Definitions

Variable	Definition	Source
Political uncertainty variables		
PU	Political uncertainty is constructed monthly using the two-party preferred voting intention (TPP) data in Australia (see equation (1)) and averaged over the 12-month period preceding the acquisition month.	Roy Morgan Research's public opinion polls. http://www.roymorgan.com/morganpoll/federal-voting/2pp-voting-intention-trend-1901-2019
High PU	An indicator variable that equals 1 if the pre-announcement PU is ranked in the top quartile during the whole sample period, and 0 otherwise.	
ΔPU%	Expressed as percentage change during the acquisition interim period. Specifically, it is measured as the relative change in PU between the initial acquisition announcement date and the announcement date of the acquiring firm completing the first-stage payment or exercising the acquired option.	
Macroeconomic variables		
Implied volatility (VIX)	VXO implied volatility index from the Chicago Board Options Exchange (CBOE)	Bloomberg
Stock Market return	Return on the Australian Securities Exchange All Ordinaries Index	Bloomberg
Commodity price index	Non-rural Commodity Prices Index	Reserve Bank of Australia
Federal elections	An indicator variable equals 1 if there is an upcoming federal election within three months, and 0 otherwise.	Australian Politics and Elections Database elections.uwa.edu.au/
Exog. EPU	The residuals from regressing the monthly Australian economic policy uncertainty (EPU) index on the monthly US EPU index and VIX, ASX stock market return, Commodity price index and a time trend variable. The residuals are then averaged over the 12-month period preceding the acquisition announcement date.	Baker, Bloom and Davis (2016) The EPU index is available at: https://www.policyuncertainty.com/
Firm-level variables		
Firm size	Natural logarithm of total assets	Morningstar
Market-to-book ratio	Closing share price on financial year-end date divided by book value of equity per share.	Morningstar

Financial leverage	Total assets divided by book value of equity.	Morningstar
Cash holdings (%)	Cash divided by total assets (%)	Morningstar
Past stock return	Cumulative monthly stock returns in the prior 12-month period	SIRCA SPPR
Firm-level volatility	Standard deviation of firm's monthly stock returns in the prior 12-month period	SIRCA SPPR
Deal-level variables		
Staged deal	An indicator variable that equals 1 if an announced acquisition is structured as staged deal (e.g., farm-in agreements, option agreements, acquisitions with contingent consideration or instalment payments), and 0 otherwise.	Hand collected from Morningstar
Non-staged deal	An indicator variable that equals 1 if an announced acquisition is structured as non-staged deal (a lump sum payment), and 0 otherwise.	Hand collected from Morningstar
Domestic acquisition	An indicator variable that equals 1 if the target project in an acquisition is in located in Australia, and 0 otherwise.	Hand collected from Morningstar
Offshore acquisition	An indicator variable that equals 1 if the target project in an acquisition is not in located in Australia, and 0 otherwise.	Hand collected from Morningstar
All Cash (0/1)	An indicator variable that equals 1 if the payment is fully in cash, and 0 otherwise	Hand collected from Morningstar
All Stock (0/1)	An indicator variable that equals 1 if the payment is fully in stock, and 0 otherwise.	Hand collected from Morningstar
CAR[-1,+1]	Acquiring firm's market-adjusted cumulative abnormal stock return over the 3-day window [–1, +1] centered on the initial announcement day.	SIRCA Databricks
Deal agreement	A categorical variable that represents different types of deal agreements in staged acquisitions. *Deal agreement* = 0, 1, 2, 3, or 4 if the announced acquisition is a non-staged transaction, a farm-in deal, an option agreement, an acquisition with contingent consideration, and an acquisition with installment payments, respectively.	Hand collected from Morningstar
Deal renegotiation	An indicator variable that equals 1 if the announced deal is renegotiated during the interim period (e.g., revising the offer price, extending the scheduled deal completion date), and 0 otherwise.	Hand collected from Morningstar
Ln(contract duration)	Natural logarithm of the contracted length of time (in months) for the first-stage payment or option period in staged acquisitions.	Hand collected from Morningstar

Ln(1+Actual deal closing time)	Natural logarithm of one plus the actual deal closing time (in months), which is the duration between the date of the initial acquisition announcement and the date of completing the first tranche payment or when the option exercise is announced.	Hand collected from Morningstar	

Appendix 2. Examples of staged acquisition announcements

Example 1: An option agreement

Contact Uranium Limited (CTS) announced on 15/09/2008.

Title: *Contact Acquires New Prospect in Peru*

Details of Leon Option

The Company has paid a non-refundable option fee of US$50,000 to the owner of the Leon Prospect and under the terms of the option may:

- Earn a 25% interest by spending not less than US$100,000 in exploration in the first twelve months of the option period;
- Earn a further 26% interest by spending not less than US$200,000 in exploration in the second twelve months of the option period and paying the sum of US$250,000 to the vendor to take its total interest to 51%; and
- Earn a further 49% interest by spending not less than US$400,000 in exploration in the third twelve months of the option period and paying the sum of US$1,250,000 to the vendor to take its total interest to 100%

The Company is actively seeking to expand its land position within the Macusani Uranium Province from its current tenement holding and the acquisition of the Leon Prospect is the first step in that direction.

In this example, the total consideration of acquiring this project is US $2.2 million, including exploration expenditure requirement and payments to the vendor (excluding option fee). This deal would proceed in three stages, and the acquiring firm CTS bought sequential call-options to increase its ownership from 25% to 51% and further to 100% if in good states, or to withdraw from this project at the end of the first or second stage if in bad states.

Example 2: An acquisition with contingent payments

Piedmont Lithium Limited (PLL) announced on 22/12/2010

Title: ACQUISITION OF PROSPECTIVE YALGOO GOLD PROJECT

Commercial Terms

In consideration for the acquisition, WCP has paid the vendors $22,000 and issued 150,000 ordinary shares in WCP. An Appendix 3B is attached.

In addition, further ordinary shares will be issued to the vendors upon achievement of the following milestones:

(i) 1,000,000 ordinary shares to be issued upon the announcement to the ASX of a Mineral Resource of at least 100,000 ounces of gold (or a gold equivalent of base and ferrous minerals) attributable to WCP on the tenement and reported in accordance with the JORC Code, within five years from completion of the acquisition; and

(ii) 2,000,000 ordinary shares to be issued upon the announcement to the ASX of a Mineral Resource of at least 500,000 ounces of gold (or a gold equivalent of base and ferrous minerals) attributable to WCP on the tenement and reported in accordance with the JORC Code, within five years from completion of the acquisition.

In this transaction, the total consideration consists of two types of payments: a small upfront payment and contingent payments of 3 million shares based on future performance hurdles (resources-based). The contingent consideration within five years from completion of the acquisition is only “exercised” when future good news is released.

Example 3. Deal withdrawal terms in option transactions

Magma Metals Limited (MMW) announced on 05/10/2011

Title: LAKE GRACE GROUND POSITION EXTENDED

Lake Magenta Option:

- Magma will have an exclusive five year option to acquire a 100% interest in the Lake Magenta tenement for $0.5 million in cash.
- Magma will pay the vendor $25,000 for exploration data.
- If Magma exercises the option, it will grant the vendor a $1/tonne production royalty capped at $1 million.
- Magma may withdraw from the option agreement at any time.

Example 4. Extension of the initial completion date/option period

CBH Resources Limited (CBH) announced on 17/06/2003

Title: Update on Elura Mine Purchase

Re: Update on Elura Mine Purchase

Consolidated Broken Hill Ltd and Pasminco Australia Ltd have agreed to extend the unconditional date for the purchase of the Elura Mine at Cobar, New South Wales, to 18th July 2003.

The extension of time is to seek greater certainty on two key issues – Workers Compensation Insurance premiums, and the rescission of the current Elura Consent Award enabling implementation of modern labour arrangements at the Mine.

Chapter 3: Policy uncertainty and acquisition abandonment

1. Introduction

Uncertainty is often a "deal-breaker" in acquisitions. The multitude of unknowns surrounding government policy and regulation often pressure dealmakers to renegotiate and even terminate announced acquisitions. For example, soon after the US Treasury Department introduced new tax rules, drug maker Pfizer terminated its agreement to acquire Allergan. Similarly, China Mengniu Dairy walked away from its proposed acquisition of an Australian-based dairy firm Lion after the Australian treasurer said the deal would be "contrary to the national interest."[21] Although practitioners have publicly speculated on the link between policy uncertainty and acquisition abandonment, little empirical evidence on this link has been provided in the acquisitions literature. This chapter, therefore, investigates whether policy uncertainty is an important determinant of acquisition abandonment.[22]

The main hypothesis in this chapter is that policy uncertainty affects the acquisition process during the post-announcement period and even acquisition outcomes. This premise is grounded on economic theories of incomplete contracting, which argue that contracts are inherently incomplete because contracting parties cannot fully anticipate or explicitly specify all future states of the world (Hart and Moore, 1988; Aghion and Bolton, 1992; Tirole, 1999). In terms of acquisition contracts specifically, an initial acquisition agreement does not guarantee completion of a deal (Skaife and Wangerin, 2013; Bhagwat et al., 2016). Acquisition parties continue to receive new information after signing the original

[21] See Humber C. and Pierson R., April 2016. "Obama's inversion curbs kill Pfizer's $160 billion Allergan deal." *Reuters* (Available at: https://www.reuters.com/article/us-allergan-m-a-pfizer-idUSKCN0X21NV); and Kehoe J., August 2020. "China Mengniu takeover of Lion Dairy collapses." *Financial Review*. (Available at: https://www.afr.com/companies/manufacturing/china-mengniu-takeover-of-lion-dairy-collapses-20200825-p55p0w).

[22] In this chapter, the terms *acquisition/deal termination* and *abandonment* are used interchangeably.

agreement and keep reviewing the pending transaction (Hotchkiss et al., 2017; Lai and Pu, 2019). If policy uncertainty keeps rising and lingers after an initial deal announcement, it may change the economic implications of the proposed investment, potentially leading to contract revision or even termination. It is thus posited that policy uncertainty plays a critical role in triggering acquisition renegotiation and even abandonment.

Using a hand-collected sample of project acquisitions by Australian mining exploration entities (MEEs) in 1998–2017, this chapter investigates the impact of policy uncertainty on the acquisition process, with a particular focus on the interim period and acquisition outcomes. Australian policy uncertainty is measured using a news-based index, developed by Baker, Bloom, and Davis (2016) (hereafter, BBD). This index has been used in prior studies as a good indicator of policy uncertainty (e.g., Gulen and Ion, 2015; Xu, 2020).

The main findings of this chapter are as follows. First, a rise in policy uncertainty after an initial deal announcement is associated with a delay in deal completion. Regression results suggest that, holding other variables at their sample means, a 27% increase in the policy uncertainty index after an initial deal announcement results in an extra month of time to close the deal. A positive association is also identified between rising policy uncertainty and the likelihood of acquirers announcing an extension of deal closing date. These results are consistent with the real options theory that managers tend to delay deal resolutions when faced with elevated policy uncertainty.

Second, empirical evidence is presented confirming anecdotal observations that protracted policy uncertainty is an important deal-breaker in acquisitions. Specifically, when high policy uncertainty is prolonged for 12 months without

interruption, the probability of acquirers abandoning announced deals in the following month increases by 11%. The inferences are unaffected by including a comprehensive set of deal-, firm-, and macro-level controls. The results are also robust to an instrumental variable approach, in which the time that the Parliament of Australia spent on legislation is used as an instrument for protracted policy uncertainty. By documenting a direct link between policy uncertainty and acquisition abandonment, the findings in this chapter shed new light on factors affecting acquisition outcomes.

Third, the firm-specific cost of acquisition abandonment, as perceived by the equity market, is largely dependent on the extent of policy uncertainty. On average, the market reaction to acquirers' announcements of deal abandonment is negative. Nevertheless, the stock market tends to penalize acquirers' deal abandonment decisions to a lesser extent after observing a longer period of high policy uncertainty. For instance, when high policy uncertainty lingers for more than one year, the negative impact of deal abandonment on acquirers' shareholder value becomes insignificantly different from zero. These results continue to hold using a propensity score matched sample of completed and terminated acquisitions. Hence, this chapter presents evidence suggesting that investors do consider acquirers' exposure to policy uncertainty.

It is possible that muted market reactions to acquirers' abandonment decisions under high uncertainty might be explained by market inattention. Prior literature suggests that managers are likely to disclose bad news during periods of high uncertainty or market inattention when investor information processing is constrained (e.g., Duchin and Schmidt, 2013; DeHaan et al., 2015). However, this explanation is ruled out given the empirical evidence that, rather than being

distracted under uncertainty, investors do analyse bad news (i.e., acquisition termination) based on the information content that managers provide (Knauer and Wöhrmann, 2016). For example, the market prefers that acquirers step away from deals subject to policy uncertainty or regulatory risk. Investors also react less negatively when a pending transaction is terminated under uncertainty to avoid the sunk cost fallacy (Arkes and Blumer, 1985). Yet, if an acquirer withdraws from a proposed deal due to its inability to secure acquisition financing, then the market is unforgiving. Therefore, the findings imply that stock market reactions to deal abandonments incorporate policy uncertainty considerations.

Overall, this chapter makes several contributions. First, it adds to the literature on determinants of acquisition abandonment. Prior theoretical and empirical studies demonstrate that managers' learning from market reactions to initial deal announcements or from new information arriving in the pre-closing stage is a main driver for deal renegotiation and acquisition termination (e.g., Luo, 2005; Liu and McConnell, 2013; Hotchkiss et al., 2017; Lai and Pu, 2019). However, they do not specify the nature of the news that is generated from different sources. Bhagwat et al. (2016) find that increases in stock market volatility during the interim period drive ex-post contract revisions in mergers, though they do not consider changes in policy uncertainty. The findings in this chapter highlight that policy uncertainty is an important deal-breaker in acquisitions.

This chapter also extends the literature examining the link between policy uncertainty and acquisition activities. Prior studies investigate the impact of policy uncertainty on completed acquisitions and initial deal announcements (e.g., Nguyen and Phan, 2017; Bonaime et al., 2018; Chen et al., 2021). This chapter distinguishes from these studies by focusing on the interim phase and acquisition outcomes. More

importantly, the results presented in this chapter underscore a key dimension of policy uncertainty: the duration of uncertainty (Gulen and Ion, 2015). Both the level and duration of policy uncertainty negatively impact acquisition outcomes. In particular, prolonged policy uncertainty jeopardizes external growth options for early-stage businesses like MEEs. The findings in this chapter help us understand more fully the impact of prolonged uncertainty on acquisitions and, more generally, on corporate investment. Further, the existing evidence on acquisitions has been exclusively based on large public acquirers;[23] however, as small firms' acquisition behaviour and financial attributes differ significantly from those of large firms, the acquisition performance of small firms deserves more academic attention (Weitzel and McCarthy, 2011). This chapter fills this gap in the acquisitions literature.

Last, this chapter contributes to the literature that explores market sentiment to firm announcements in uncertain times. Investors may underreact to an acquirer's announcement of deal abandonment when there are greater levels of uncertainty (Hirshleifer et al., 2009). As a result, managers are more prone to disclose bad news in periods when investor information processing is more constrained, so they may avoid severe market penalties (Duchin and Schmidt, 2013; DeHaan et al., 2015). However, the findings in this chapter show that investors are not totally distracted under protracted policy uncertainty; rather, they are able to tease out the underlying reasons for bad news in acquisitions (i.e., acquisition termination). This particular finding is new to the growing literature on market inattention.

The remainder of this chapter is organized as follows. Section 2 outlines the background of the Australian mining sector and presents empirical predictions for

[23] The data selection in most M&A research typically places a lower limit on deal value (e.g., USD $10 million) or firm size (e.g., USD $50 million) in order to intentionally exclude small firms with small deals (e.g., Schlingemann, 2004).

this study. Section 3 describes sample firms and MEE project acquisitions. Section 4 reports empirical results and related discussion. Section 5 provides robustness tests, and Section 6 concludes this chapter.

2. Research background and empirical predictions

2.1 Mining exploration entities in Australia

The focus of this chapter is to investigate how policy uncertainty affects the acquisition process *after* acquisitions are announced. To address this question, a hand-collected sample of project acquisitions by Australian mining exploration entities is utilized. This setting is chosen for several reasons. First, as discussed in chapter two, the mining sector is economically important in Australia and often a focal point of political debate. The Australian political backdrop and economic significance of the mining sector thus provide an ideal laboratory for researchers to examine the impact of policy uncertainty on corporate investment.

Second, the unique industry structure of the mining sector enables an examination of early-stage firms' acquisition attempts. Unlike globally diversified resource giants (e.g., BHP Billiton, Rio Tinto) that focus primarily on mine management and cash flow maximization, junior miners share a homogeneous business objective: to acquire mining projects and make economic resource discoveries. These MEEs make up three quarters of the sector, turning Australia into the most active mining acquisition market globally. For example, Australian mining acquisitions in the first half of 2020 were worth USD $3 billion and accounted for about 11 percent of the value of global deals.[24] However, MEEs exhibit markedly different acquisition behaviour from large firms due to increased

[24] Evan, N., August 9, 2020, "Mining sector set for fresh wave of mergers and acquisitions." *The Australian.*

regulatory scrutiny on mining exploration (e.g., work health and safety concerns, environmental protection) (Christensen et al., 2017) and a lack of internal funding. Junior miners are often referred as "cash burners" because they generate no operating revenue during exploration and pre-development phases, which routinely take between 10-20 years (Ferguson and Lam, 2021).[25] As a result, MEEs largely rely upon external equity financing to fund acquisition and exploration activities, and favour the use of earnouts or staged payments in acquisition contracts to mitigate the valuation risk of targets (Ferguson et al., 2021). Nevertheless, despite the importance of small businesses in any economy, acquisition attempts by small and early-stage firms have long been ignored in the acquisitions literature (Weitzel and McCarthy, 2011). This chapter aims to fill this gap by taking advantage of the unique industry structure of the mining sector.

Apart from its economic importance, this setting also has several empirical advantages. MEE project acquisitions often take a long time to complete. On average, it takes 7 (12) months for MEE acquirers to complete (terminate) a deal.[26] The long interval between deal initiation and resolution fits the assumption of incomplete contracting theory. The high deal frequency among MEEs also affords sufficient observations for deal renegotiations/terminations. More importantly, the ASX's continuous disclosure requirements prove useful for examining the acquisition interim stage. ASX listing rules require that any major delay in completion or revision of a previously announced contract should be immediately

[25] There are five stages of the mining life cycle: exploration, evaluation, mine-site development, production, and closure.

[26] This is consistent with Ekelund et al. (2001) in that acquisitions in regulated industries often take longer to complete than deals not subject to the scrutiny of regulatory agencies. As a comparison, in the US setting, Luypaert and De Maeseneire (2015) observe that the average time between an initial announcement and the completion of mergers is 112 days. Meanwhile, Lai and Pu (2019) show that the average time for acquisition withdrawals is 110 days in their sample, and Hotchkiss et al. (2017) document an average deal resolution time of 5.16 months.

disclosed to the public (ASX Listing Rules 3.1, 3.1A and 3.1B);[27] in turn, this requirement provides researchers with an opportunity to observe attributes of an acquirer's decision to revise or even abandon an ongoing transaction in the face of uncertainty. Further, by focusing on a single industry, researchers are better able to capture the factors affecting acquisition outcomes, because a relatively homogenous sample helps mitigate the heterogeneity in business models among different industries (Zhang and Zhang, 2017).

2.2 Empirical predictions

There are wide-ranging motivations for revising or terminating an announced acquisition. They include adverse rulings by regulatory agencies, managers learning from market reactions to initial deal announcements, or related media coverage (Luo, 2005; Liu and McConnell, 2013), targets' low-quality financial reporting (Skaife and Wangerin, 2013), funding issues, as well as differences in national institutional features or cultures in cross-border transactions (Weber and Camerer, 2003; Dikova et al., 2010; Caiazza and Pozzolo, 2016). Nevertheless, from a theoretical perspective, deal revisions are invariably a consequence of the restrictiveness of an initial contract. Incomplete contracting theory suggests that, since many future contingencies are left out of an initial contract due to difficulties in predicting the future states of the world, a contract is likely to be revised (Aghion and Bolton, 1992). This is also applicable to the context of acquisition contracts.

While its importance is widely acknowledged by the investment community, the post-announcement period in acquisitions is under-researched in the literature

[27] The ASX requires all listed entities to comply with continuous disclosure obligations and immediately disclose information that has "a material effect on the stock price or value of the entity's securities." If a firm does not disclose to the general public "when a previously announced material customer contract is terminated or does not proceed," then the firm fails to meet its disclosure obligations (ASX Listing Rules 3.1, 3.1A and 3.1B).

(Wong and O'Sullivan, 2001; Skaife and Wangerin, 2013; Bhagwat et al., 2016; Lai and Pu, 2019). An acquisition agreement has a long interval between the initial deal announcement and scheduled completion date; it could last for months or even years (Ekelund et al., 2001; Chen et al., 2016). After announcing a proposed acquisition, transaction parties continue to receive new information including deal- and firm-specific information, as well as other unexpected changes in market conditions or government policy. New information allows both acquisition parties to improve the precision of the underlying transaction value and also reveals problems in the existing deal (Hotchkiss et al., 2017). As such, the economic prospect of an ongoing transaction is likely to change materially with the arrival of new information. Thus, policy uncertainty, an exogenous source of uncertainty, is likely to trigger acquisition revision or even termination.

It is argued that policy uncertainty will affect the acquisition interim stage in several ways. First, increases in policy uncertainty after an initial acquisition announcement will lengthen the deal completion time. Real options theory suggests that investors tend to "wait-and-see" when uncertainty increases (McDonald and Siegel, 1986). If policy uncertainty rises after acquisitions are announced, then acquirers are more likely to wait for additional information or the resolution of uncertainty, which extends the time it takes to close a deal. It is thus expected that a rise in policy uncertainty after an initial acquisition announcement would be associated with a longer deal completion time.

Second, policy uncertainty also affects acquisition outcomes. Prior studies show that policy uncertainty poses financing challenges for businesses (Colak et al., 2017; Jens, 2017) and affects global commodity prices (Hou et al., 2020). Hence, the economic implications of proposed investments by MEEs might look worse in

times of policy uncertainty. More importantly, although uncertainty increases the value of the option to wait, it also increases the cost of waiting (Alvarez, 1999). The degree of uncertainty largely determines which of these two opposing forces dominates in the pre-completion stage of the acquisition process. Theoretically, the waiting period will be short if the degree of uncertainty is small (Stokey, 2016); however, when the degree of uncertainty is no longer small, managers' incentives to wait may no longer hold. To avoid the cost of further waiting and potential future losses brought about by prolonged policy uncertainty, acquirers are likely incentivized to abandon pending transactions. As such, the second prediction is that protracted policy uncertainty is a key contributor to acquisition abandonment.

Third, it is predicted that the consequences of acquisition abandonment on acquiring firms' shareholder value would depend on the extent of policy uncertainty. The obvious consequences of deal abandonment on acquirers include (1) direct costs (e.g., legal and consulting fees) and (2) damage to acquirers' reputations due to either substantial acquisition-related costs becoming sunk (Luo, 2005) or acquirers' inability to materialize investment opportunities (Schlingemann, 2004). Hence, deal terminations, on average, will negatively impact acquirers' shareholder value. Nevertheless, the effect of the same news may vary under different states of the world (Veronesi, 1999). For instance, Boyd et al. (2005) show that the announcement of rising unemployment is good news for stocks during economic expansions and bad news during economic contractions. In certain cases, an abandonment of a value-destroying acquisition could benefit an acquirer's shareholder interests because the reversal decision recoups, in part, the acquirer's lost reputational capital at the initial deal announcement (Liu and McConnell, 2013). Similarly, although an acquisition abandonment is often interpreted as bad news for

acquirers' shareholders, it may be less detrimental under prolonged high policy uncertainty because such a withdrawal decision could help the acquirer reduce ex-post business risk. In summary, it is conjectured that, after observing a longer period of high policy uncertainty, the stock market will react less negatively to acquirers' announcements of deal abandonment. The three empirical predictions are tested in Section 4.

3. Sample and data

3.1 Sample

The initial sample selection is the same as that in chapter two. The initial sample firms consist of metals and mining entities listed on the Australian Securities Exchange (ASX) (*GICS Sector: Materials, GICS industry: Metals & Mining*) from January 1998 to December 2017. As the focus of this chapter is MEEs, mining producers are excluded. Mining producers focus primarily on profit and cash flow maximization, in contrast to MEEs' focus on acquisitions and exploration activities. MEEs are identified as mining firms with a production revenue less than 15 percent of their market capitalization (Ferguson and Pündrich, 2015). Data on project acquisitions are hand-collected from ASX announcements on the Morningstar DatAnalysis Premium database. The data collection process proceeds as follows. First, all initial announcements of project acquisitions by sample firms are identified if an announcement falls in *Announcement sub-type* "*Acquisition*", or has the following key words in its headline: *"acquire/acquisition"*, *"secure opportunity"*, *"obtain project"*, *"new project"*, *"purchase agreement"*, *"expand ground/expansion"*, *"option agreement"*, and *"farm-in agreement*". Next, the progress of each transaction subsequent to its initial announcement is monitored, and all stand-alone announcements are collected if they are in relation to (i) deal

renegotiation, including extensions of deal closing dates and revisions of offer prices; and (ii) deal resolution, either completion or termination.[28,29] The final sample for empirical tests consists of 979 acquisitions from 491 unique firms with deal resolution announcements available.

Policy uncertainty in Australia is measured using the Australian news-based policy uncertainty index, developed by Baker, Bloom and Davis (2016). This index (hereafter, BBD) is constructed monthly and based on news articles with key terms related to uncertainty from the eight largest Australian newspapers. The eight Australian newspapers include: *The Daily Telegraph*, *The Courier Mail*, *The Australian*, *The Age*, *The Advertiser*, *The Mercury*, *Sydney Morning Herald*, and *The Herald Sun*.[30] Figure 1 plots the BBD policy uncertainty index in 1998–2017. It shows that the level of Australian policy uncertainty surged around events relating to financial crises, the mining tax and carbon tax policy debates, as well as around Australian elections. Though this news-based index captures the impact of some international events (e.g., 9/11, Brexit), Figure 1 clearly shows that a long period of high policy uncertainty occurs between 2012 and 2013 and is unique to Australia. It is mainly attributed to the uncertainty with respect to domestic mining policy and Australian federal elections.

[Insert Figure 1 here]

Table 1 Panel A reports the distribution of deal abandonment/renegotiation by calendar year. On average, 33.7% (13.3%) of announced acquisitions in the

[28] See Appendix 2.1 for examples of announcement headlines of project acquisitions, deal renegotiations, and terminations.
[29] As a unique transaction type in the mining sector, an option agreement grants a MEE an option to purchase a project. The granted option period ranges from one month to two years. For these option agreements, deal completion (termination) is defined as the exercise (termination/lapse) of the option (See Appendix 2.1).
[30] The BBD index is available at: https://www.policyuncertainty.com/australia_monthly.html

initial sample are terminated (renegotiated).[31] The highest deal termination rate is 47%, observed in 2008. This is closely followed by a deal termination rate of 45% in both 2012 and 2013, corresponding to 21 consecutive months of high policy uncertainty in Australia (i.e., above the sample mean) from June 2011 to February 2013. In addition, there are six consecutive years between 2010 and 2015 with deal renegotiation rates higher than the sample average, coinciding with the period of mining tax and carbon tax debates, as well as federal election uncertainty. Collectively, the patterns revealed in Table 1 Panel A suggest that policy uncertainty could be an important driver for acquisition renegotiation and even abandonment.

[Insert Table 1 here]

Table 1 Panel B presents the matrix of acquisition outcomes. The sample transactions are categorised into different outcome based on (1) whether an announced acquisition is completed or terminated, and (2) whether there is any renegotiation before deal completion or termination. This procedure results in a 2×2 matrix of acquisition outcomes for the sample of 979 mining project acquisitions. Overall, 57% of the announced deals are completed as initially contracted, 9% are completed with renegotiation, 4% are terminated with renegotiation, and 30% are terminated without any deal revision.

3.2 Descriptive statistics of acquisition abandonments

To provide descriptive evidence about potential determinants of acquisition abandonment, managers' explanations for deal abandonment from acquirers'

[31] The high termination rate in MEEs' project acquisitions is unsurprising due to stringent regulations and inherent valuation risk in the mining sector. For comparison's sake, the failed acquisition attempts examined in prior US studies range from 8% to 25% based on different sample periods and selection criteria (e.g., Luo, 2005; Bhagwat et al., 2016; Hotchkiss et al., 2017; Adra et al., 2020).

announcements are hand collected.[32] Table 2 shows that announced acquisitions are terminated for various reasons. The most commonly stated reason is related to specific news about the acquired assets (e.g., resource potential, exploration technicality), which accounts for 28.9% of all abandoned transactions. It is noteworthy that regulation/policy uncertainty or risk is the second-most listed reason for acquisition abandonment (12.4%). The next two most common reasons are acquirers' shift in exploration/business focus (9.1%) and acquisition funding difficulties (8.8%). Others include due diligence conditions not being satisfied (6.8%), changes in economic/market conditions (6.5%), and legal disputes (4.7%). Note that close to 23% of all terminated deals do not provide any explanation for deal termination decisions.[33]

[Insert Table 2 here]

Explanations with respect to deal resolution time are also summarized in Table 2. On average, MEE acquirers take 12 months to abandon announced deals. The longest pre-closing period (21 months) occurs due to acquirers' shift in their exploration/business focus. This is followed by a 13-month pre-closing period that reflects acquirers' inability to secure acquisition financing in time, highlighting MEEs' typical financial constraints due to a lack of operating revenue and limited access to debt financing (Myers and Majluf, 1984). In comparison, if an acquirer is not satisfied with due diligence results, then it takes a relatively shorter time (5

[32] See an example of an acquisition termination announcement in Appendix 2.2. Note that in Table 2, the number of reasons for deal abandonment is counted, not the number of abandoned deals, because some announcements list more than one reason for deal abandonment. As a result, the total number of stated reasons in Table 2 is slightly larger than the total number of abandoned transactions.
[33] Due to data unavailability, whether the deal termination decision is initiated by the acquirer or target is not identified. As project acquisitions by MEEs typically involve private targets, the stated reasons are only able to be collected from acquirers' announcements. Moreover, it is often stated in announcements that acquisition parties mutually agree to terminate a proposed transaction.

months) to terminate a deal. When facing uncertainty in the stock/commodities market, MEE acquirers take 12 months to abandon announced transactions. Overall, Table 2 implies that MEE acquirers often face several challenges when attempting to close deals.

Next, univariate analysis is conducted to provide preliminary evidence on the factors affecting acquisition outcomes. Table 3 reports the mean value of characteristics of completed versus terminated transactions at the deal-, firm-, and macro-level. Definitions of variables and data sources are provided in Appendix 1. At the deal-level, 21% of completed transactions are entirely financed by stock, which is significantly higher than the 12% used in terminated deals, while there is no significant difference in the use of all-cash payments between completed (17%) and terminated (14%) transactions. Additionally, as a unique deal structure of project acquisitions in the mining exploration industry, option-like acquisitions account for 31% of completed deals and 62% of terminated deals. Option-like acquisitions include option agreements (e.g., acquiring an option to purchase a project) and earnout agreements (e.g., a portion of purchase price is deferred and dependent on the target achieving performance milestones or ex-post events). These deals are similar to compound options: acquirers with option-like deals not only secure exploration opportunities, but also retain options to cap the costs of bad news by terminating ongoing transactions after gaining additional information during either the option period or the first exploration stage, long before the acquisition price is fully paid (Ferguson et al., 2021). Importantly, option-like deals have few contractual protection mechanisms (e.g., termination fees, material adverse event clauses). Hence, due to the relative ease of abandonment of such transactions, it is unsurprising that most terminated transactions are option-like deals.

Further, the average acquirers' cumulative abnormal return (CAR) of completed acquisitions (10%) around the initial deal announcement is significantly higher than that of terminated deals (6%). As expected, announcements of deal termination receive an average market reaction of –6%, compared to 2% for announcements of deal completion. This difference is statistically significant at the 1% level, suggesting that acquisition abandonments generally impair acquirers' shareholder value. Finally, the average deal resolution time of terminated transactions is almost five months longer than that of completed deals, implying that acquirers likely adopt a "wait-and-see" strategy before they finally decide to abandon announced transactions.

With respect to firm-level characteristics, acquirers that terminate deals are smaller in size and have less acquisition experience than acquirers that successfully close transactions. The two groups are similar in terms of their financial leverage, market-to-book ratio, and stock volatility. A comparison of macro-economic fundamentals further reveals that, before the actual deal resolution dates, terminated deals often face higher macro-level uncertainty than completed deals, such as a longer periods of high policy uncertainty, higher economic and commodity price volatility, and lower stock market returns. In line with managers' stated reasons listed in Table 2, the univariate analysis in Table 3 suggests that policy uncertainty strongly impacts acquisition termination.

[Insert Table 3 here]

4. Empirical results

4.1 Post-announcement policy uncertainty and the acquisition interim period

The empirical analysis begins with investigating how policy uncertainty affects the acquisition process in the post-announcement period. Specifically, the first examination is whether changes in policy uncertainty after the initial acquisition announcement affect (1) deal resolution time (i.e., the number of months acquirers take to close announced deals) and (2) the likelihood of deal renegotiations (e.g., extending deal closing dates, revising offer prices). Deal resolution time or the likelihood of deal renegotiation is modelled as a function of changes in policy uncertainty after initial deal announcements as follows, controlling for deal-, firm-, and macro-level characteristics:

$$Resolution\ Time_{i,j}\ or\ Deal\ revison_{i,j} = \alpha + \beta \times \%\Delta PU_{i,j} + \lambda \mathbf{C} + \varepsilon_{i,j}\ , \quad (1)$$

in which $Resolution\ Time_{i,j}$ is the natural logarithm of one plus the duration (in months) between the date of the initial acquisition announcement and that of the deal completion or termination for deal *j* of firm *i*. *Deal revision* is a categorical variable, with '0' = no deal revision, '1' = revising offer price, and '2' = extending deal closing date. $\%\Delta PU_{i,j}$ is the relative change in the policy uncertainty index during the interim period of deal *j* of firm *i*, calculated as $(PU_{resolution} - PU_{initial})/PU_{initial} \times 100$, in which $PU_{resolution}$ ($PU_{initial}$) is the average 3-month BBD policy uncertainty index before the deal resolution date (i.e., initial deal announcement date).

The set of control variables, **C**, includes deal-, firm-, and macro-level characteristics. Deal-level controls include indicator variables for payment method, *All stock* (*All cash*), which equals 1 if the acquisition consideration is all paid in

stock (cash), and 0 otherwise. Also, *Initial CAR* represents an acquirer's 5-day announcement CAR centered on the initial deal announcement date and controls for deal quality (Luo, 2005; Liu and McConnell, 2013). Finally, *Option-like deal* is an indicator variable that equals 1 if the announced acquisition has an option-like deal structure (e.g., an option agreement to purchase a project), and 0 otherwise. This variable captures the ease of deal renegotiation or abandonment, as some option-like deals are not associated with definitive acquisition agreements and have few contractual protection mechanisms.

Firm-level controls include variables commonly used in M&A studies, such as *Ln(Total assets)*, *Financial leverage*, *Market-to-book*, *Cash holdings (%),* and *Stock volatility*. Firm-level accounting variables (stock volatility) are measured in the fiscal year (12-month period) prior to the initial acquisition announcement date. To control for acquirers' learning experience (Aktas et al., 2013), *Past acquisition experience* is included and measures the number of acquisitions announced by firm *i* before transaction *j* during the sample period.

Consistent with the policy uncertainty literature, the following macro-level variables are also included to control for uncertainty brought about by economic fundamentals: (1) *Federal election* controls for uncertainty related to specific Australian federal elections, (2) *Stock market returns* represents returns on the ASX All Ordinaries Index and controls for Australian stock market conditions, (3) *Commodity price index* from the Reserve Bank of Australia (RBA) controls for non-rural commodity price cycles,[34] and (4) *Implied volatility* represents the VXO index

[34] The RBA non-rural commodity price index covers bulk commodities (Iron ore, Coal), base metals (Lead, Zinc, and Nickel) and other resources (Gold, Copper ore) (Available at: https://www.rba.gov.au/statistics/). Given that more than 80% of MEE project acquisitions target gold, copper, and iron ore, this index is used to capture the potential impact of commodity price fluctuations on MEE project acquisition activities.

of implied volatility from the Chicago Board Options Exchange (CBOE) and measures general economic uncertainty.[35] *Federal election* is an indicator variable that equals one if the initial deal announcement date of deal *j* is within the 3-month period before a scheduled federal election. Changes in other macro-level variables during the pre-completion period are all measured similar to *%ΔPU*. The model in equation (1) is estimated with regression results as reported in Table 4 columns (1) – (3). Standard errors are clustered by firm and year in all specifications.

[Insert Table 4 here]

Consistent with predictions, a rise in policy uncertainty after initial deal announcements leads to a longer deal resolution time. The coefficients on *%ΔPU* in columns (1) – (3) in Table 4 are all positive and statistically significant at the 1% level, suggesting that acquirers are likely to "wait-and-see" amid rising policy uncertainty before concluding an announced deal. Specifically, the coefficient on *%ΔPU* in Model 1 (column 1) (coef. = 0.002, *t*-stat = 5.25) indicates that a 27% increase in policy uncertainty during the post-announcement period causes a 1-month delay in closing an announced deal, controlling for deal-, firm-, and macro-level characteristics. Given that nearly 25% of the sample transactions experienced more than a 29% increase in policy uncertainty during the pre-completion stage, the findings suggest that policy uncertainty imposes non-trivial waiting costs on transaction parties. The inferences are unaffected by (1) including time and firm fixed effects in Model 2, and (2) controlling for the pre-announcement uncertainty

[35] The CBOE Volatility Index is used in the analysis because data for the Australian S&P/ASX 200 VIX are only available from 2008 while the sample period in this study starts from 1998. Though US focused, the VXO index of implied volatility is widely considered to be the best available estimate of market uncertainty in Australia (e.g., Smales, 2016; Wu et al., 2020).

in Model 3.[36] Therefore, the results in Table 4 provide empirical evidence showing that heightened policy uncertainty after deal announcements significantly lengthens the deal resolution time.

Results for other control variables are largely in line with those of prior studies. For example, consistent with Bhagwat et al. (2016), a significantly negative association is documented between deal resolution time and increases in implied volatility (VIX). The negative coefficient on *%Δ Implied volatility* (coef. = –0.004, *t*-stat = –2.43) in column (3) suggests that acquirers shorten the time-to-completion in response to elevated levels of market-wide volatility in the short term. It is noteworthy that the BBD index and VIX represent different sources of uncertainty (Barrero et al., 2017). Since the VIX predicts short-term market uncertainty, closing a deal sooner can help reduce acquirers' exposure to short-term market risks. In contrast, the policy uncertainty index is a longer-horizon measure that would have a fundamental or longer-lasting impact on business activities. The difference in time horizons between the two measures of uncertainty explains why they affect acquisitions in different ways (Bonaime et al., 2018). Similarly, there is a significantly negative association between *Federal election* and deal completion time in column (3) (coef. = –0.233, *t*-stat = –1.69), suggesting that acquirers tend to close deals sooner to avoid election-related uncertainty. Jens and Page (2020) argue that the BBD policy uncertainty index and election-related uncertainty measures have different levels of predictability about uncertainty. For instance, uncertainty related to election timing is foreseeable because election timing is known in

[36] Nguyen and Phan (2017) find that it takes acquirers more time to complete deals when policy uncertainty in the year before the initial acquisition announcement is higher. However, they do not consider whether changes in policy uncertainty after initial deal announcements also affect the length of the interim period in acquisitions.

advance. Compared with scheduled elections, relevant events linked to policy uncertainty, as captured by news article searches, are usually more unexpected because the ultimate timing of the uncertainty resolution is usually unknown (e.g., Brexit, Covid-19 travel bans). Hence, this finding lends support to the theoretical arguments in Jens and Page (2020) that firms' investment behaviour responds differently to more or less predictable policy uncertainty.

If a higher level of policy uncertainty after initial deal announcements motivates acquirers to wait longer, then a higher likelihood of acquirers extending deal closing dates amid elevated uncertainty would also be observed. In a further test, a multinominal logistic regression is employed (Model 4 in Table 4) to examine how policy uncertainty affects deal revision decisions. The dependent variable in Model 4, *Deal revision*, is a categorical variable, with '0' = no deal revision, '1' = revising offer price, and '2' = extending deal closing date. The reference group in the multinominal logistic regression is the subsample of deals without any contract revisions, which are assigned a value of zero (*Deal revision* = 0). The explanatory variables in Model 4 are the same as those in Model 3.

Results of the multinominal logistic regression indicate that, when policy uncertainty increases after initial deal announcements, acquirers are likely to renegotiate an extended period for deal closing. The coefficient on *%ΔPU* under the category "Extending deal closing date" (*Revision* = 2) is positive and statistically significant at the 1% level (coef. = 0.006, *t*-stat = 2.86). However, revisions of offer price are not driven by policy uncertainty, as the coefficient on *%ΔPU* under the category "Revising offer price" (*Revision* = 1) is insignificantly

different from zero.[37] Overall, the results in Table 4 suggest that an increase in policy uncertainty during the post-announcement period is associated with (1) a longer deal-resolution time and (2) a higher likelihood of acquirers extending deal closing dates, confirming the existence of a "real options" effect in the acquisition interim stage.

4.2 Post-announcement policy uncertainty and acquisition outcomes

The findings in Section 4.1 are consistent with the view that policy uncertainty during the post-announcement period delays deal resolution. The next question to consider is whether policy uncertainty affects acquisition outcomes. As discussed earlier, when policy uncertainty keeps rising and persists, acquirers likely abandon announced deals to reduce further exposure to protracted uncertainty. To test this prediction, a variable *Prolonged high PU* is constructed to capture both the level and duration of policy uncertainty (Gulen and Ion, 2015). *Prolonged high PU* is the run of consecutive months of high policy uncertainty (above the sample mean) prior to the deal closing date. For example, *Prolonged high* $PU_{i,j}$ equals 12 if there is a consecutive 12-month period with high policy uncertainty prior to the closing date of deal *j* from firm *i*. By definition, *Prolonged high PU* equals zero when policy uncertainty is below the sample average. A binomial logistic regression is performed to analyse the determinants of deal termination:

$$Outcome_{i,j}(Terminated = 1) = \alpha + \beta \times Prolonged\ PU_{i,j} + \lambda \mathbf{C} + \varepsilon_{i,j}\ , \qquad (2)$$

in which the dependent variable $Outcome_{i,j}$ is an indicator variable that equals one if an announced acquisition *j* of firm *i* is terminated, and zero otherwise.

[37] Among 130 revised acquisitions in the sample, 26 revise both the original offer price and deal closing date. They are coded as category 2 in Table 4. The results are unchanged when these 26 deals are coded as category 1.

Deal-, firm- and macro-level controls are included in equation (2). The first set of explanatory variables controls for deal-level characteristics, including *All stock*, *All cash*, *Initial CAR,* and *Option-like deal*. Luo (2005) argues that corporate insiders or managers have incentives to seek information about deal prospects from market reactions to initial acquisition announcements. This line of argument is particularly applicable to this research setting. When an acquirer is a small firm like an MEE with less acquisition experience and fewer resources to process policy uncertainty information, the deal completion or abandonment decision may become more sensitive to the market's opinion when the proposed deal was first announced to the public. *Initial CAR* is thus included to control for acquirers' learning from the market and deal quality (e.g., Chen et al., 2007; Jacobsen, 2014). Further, as a unique feature of project acquisitions in the mining exploration industry, *Option-like deal* is included as a proxy for the degree of deal protection (Ferguson et al., 2021).[38]

The second set of variables represents firm-level characteristics that are similar to the controls in Table 4, including *Ln(Total assets), Financial leverage, Market-to-book, Cash holdings (%), Stock volatility*, and *Past acquisition experience*. The macro-level control variables include *Commodity price volatility*, *Stock market returns*, and *Implied volatility*, which are measured in the 12-month period prior to the deal closing date. Similar to the construction of *Prolonged high PU*, an alternative set of macro-level variables is constructed, including *Prolonged*

[38] It is noted that deal protection devices in acquisition contracts (e.g., termination fee, material adverse change clauses) help prevent acquirers and targets from cancelling proposed transactions (e.g., Officer, 2003; Bates and Lemmon, 2003; Boone and Mulherin, 2007). However, few sample transactions list deal protection devices in initial deal announcements. Rather, MEE acquirers engaged in option-like acquisitions often can "opt-out" without incurring cost penalties or doing so at the cost of option fees only. Given the unique feature of option-like acquisitions in the mining industry and the unavailability of detailed deal protection clause data, an indicator variable, *Option-like deal*, is employed to control for the degree of deal protection or the ease of deal termination.

high commodity price, Prolonged positive stock market returns, and *Prolonged high implied volatility*, to control for commodity price cycles, the capital raising environment, and the duration of high economic volatility, respectively. *Federal election* is included to capture political uncertainty relating to Australian federal elections. Regression results of equation (2) with different specifications are reported in columns (1) – (3) in Table 5 Panel A.

[Insert Table 5 here]

The results in Table 5 Panel A show that prolonged high policy uncertainty has a strong positive effect on acquisition abandonment decisions. Specifically, the positive coefficient on *Prolonged high PU* in column (1) (coef. = 0.032, *t*-stat = 2.44) suggests that an uninterrupted period of 12 months of high policy uncertainty prior to deal resolution is associated with an 11% increase in the probability of acquirers abandoning announced deals in the following month. Positive coefficients on *PU* are obtained after controlling for deal and acquirer characteristics, as well as macro-level variables in columns (2) and (3).[39] Therefore, the findings imply that prolonged high policy uncertainty is a key driver for acquisition abandonment.

It is possible that, when facing prolonged policy uncertainty, an acquirer might still attempt to complete a deal if the terms of the acquisition agreement can be renegotiated to partially offset its increased exposure to uncertainty. To investigate more fully the consequences of policy uncertainty on acquisition activities, equation (2) is re-estimated using an ordered logit regression, which adds deal renegotiation as a potential outcome of an announced transaction (Skaife and Wangerin, 2013). The dependent variable, *Outcome*, in the ordered logit regression

[39] The inferences remain the same when using linear probability regressions (OLS) with year, firm fixed effects and pre-announcement policy uncertainty (see Table 5 Panel B).

(columns 4 and 5 in Table 5 Panel A) is set equal to one of the three outcomes ranked from the least to most severe: *Outcome* = 0, 1, or 2 if the announced acquisition is completed without deal revisions, renegotiated and completed, or terminated, respectively. As expected, the parameter estimates for *Prolonged high PU* in columns (4) and (5) are all positive and statistically significant at the 1% and 5% level, respectively. The findings therefore again confirm that protracted policy uncertainty adversely affects acquisition outcomes.

Other explanatory variables in Table 5 Panel A are generally consistent with the prior literature. The negative coefficient on *Initial CAR* suggests that a lower market reaction to the initial acquisition announcement predicts a higher likelihood of deal termination. This is because a low initial CAR motivates the acquiring firm to update the economic prospects of the proposed transaction from the market and then revise the original agreement (Luo, 2005; Liu and McConnell, 2013). Moreover, the significantly negative coefficients on *Ln(Total assets)* and *Past acquisition experience* indicate that smaller or less experienced acquirers are more likely to abandon announced deals. Further, at the macro level, *Commodity price volatility* is positively associated with the likelihood of deal termination (coef. = 0.032, *t*-stat. = 2.10, in column 2), implying that a product market shock is also a key driver for acquisition abandonment. Interestingly, the coefficients on *Stock market returns* and *Prolonged positive stock market returns* are all significantly negative, suggesting that a booming stock market helps reduce funding difficulties for MEEs and, thus, reduce the probability of deal failure as well. In other words, an acquirer's ability to secure equity financing is a critical factor for successfully

closing transactions. Collectively, the results in Table 5 confirm that policy uncertainty is an important determinant of acquisition abandonment.[40]

4.3 Acquirers' cost of deal abandonment under policy uncertainty

Having documented that policy uncertainty triggers acquisition abandonment, the impact of deal abandonment on acquirers' shareholder value is considered. This section aims to gauge the firm-specific net cost of acquisition abandonment as perceived by the stock market, particularly in times of prolonged high policy uncertainty. As argued earlier, the effect of the same news may vary under different states of the world (Veronesi, 1999; Boyd et al., 2005). Hence, the average market reaction to acquirers' abandonment decisions would be negative, while this negative impact on acquirers' shareholder value would differ in relation to the degree of policy uncertainty.

Table 6 Panel A reports acquirers' 5-day resolution CAR [–2, +2], centered on the announcement date of a deal completion or termination. Acquirer abnormal returns are market-adjusted returns using the equally-weighted daily market return of all ASX-listed stocks as the market benchmark, which is sourced from the Securities Industry Research Centre of Asia-Pacific (SIRCA). For the full sample presented in column (1), deal completions are met with a positive market reaction of 1.89% while terminations receive a negative −5.81%. Their difference is statistically significant at the 1% level. This is consistent with the notion that deal abandonment is often interpreted as bad news to an acquirer.

To gauge the differential impact of prolonged policy uncertainty on market reactions to acquisition outcomes, the sample is partitioned by policy uncertainty

[40] The inferences remain unchanged when OLS regressions are conducted with firm and year fixed effects. See Table 5 Panel B.

duration. If the market considers how long acquirers have been exposed to high policy uncertainty and also considers the optimal timing of investment commitments, then the difference in resolution CARs between completed and terminated deals should differ across varying degrees of high policy uncertainty. Columns (2) – (4) in Table 6 Panel A show that this is exactly what is documented.

There is a discernible trend that the stock market penalizes acquirers' deal abandonment decisions to a lesser extent after a longer period of high policy uncertainty. When the duration of high policy uncertainty before the deal resolution date is between zero and three months (column 2), deal completions (terminations) have an average CAR of 0.024 (−0.065). When *Prolonged high PU* increases, there is a monotonic decrease (increase) in CAR for completed (terminated) deals. In addition, the difference in acquirers' announcement CAR between deal completion and termination remains statistically significant but narrows from 0.089 in column (2) to 0.074 in column (3). When high policy uncertainty lingers for at least 12 months (column 4), the difference becomes insignificantly different from zero. This finding suggests that an abandonment decision may be no worse than a completion decision under the circumstances of protracted policy uncertainty. Thus, Table 6 Panel A provides preliminary evidence that investors consider acquiring firms' exposure to policy uncertainty.

[Insert Table 6 here]

Next, a regression framework is used to investigate the impact of deal abandonment on acquiring firms' shareholder value, controlling for various factors that may also influence announcement returns. Specifically, acquirers' resolution CAR is regressed on *Prolonged high PU*, *Termination,* and their interaction term, as well as other controls. Of particular interest is the coefficient on the interaction

term *Prolonged PU* × *Termination*, which captures the differential impact of high policy uncertainty duration on market reactions to acquisition outcomes. Regression results are presented in column (1) in Table 6 Panel B.

As expected, the coefficient on *Termination* in column (1) is significantly negative (coef. = –0.108, *t*-stat = –4.20), suggesting that deal abandonment decisions, on average, lower acquirers' shareholder value compared to successful completions. However, the positive and significant coefficient on the interaction term *Prolonged high PU* × *Termination* (coef. = 0.007, *t*-stat = 2.26) indicates that investors react less negatively to acquirers' deal abandonment decisions after a longer period of high policy uncertainty.

It is noted that market reactions to acquiring firms' announcements of deal abandonment may not be affected solely by the degree of policy uncertainty. Accordingly, interaction terms of *Termination* with all other explanatory variables are added, and regression results are reported in column (2). A significantly positive coefficient on the interaction term *Prolonged high PU* × *Termination* continues to be observed (coef. = 0.008, *t*-stat = 2.74). The results are consistent with the univariate analysis in Table 6 Panel A.[41,42]

In column 3 in Table 6 Panel B, a categorical variable, *High PU*, is constructed to represent different durations of high policy uncertainty that acquirers

[41] Deal value is not included in model specifications due to difficulties in obtaining or calculating the deal value of option-like acquisitions. For example, the values of earnout payments are often missing in initial acquisition announcements (e.g., Cain et al., 2011). Nevertheless, as prior studies show that deal size significantly influences market reactions to initial acquisition announcements (e.g., Moeller et al., 2004), using *Initial CAR* as a control variable helps mitigate concerns over the absence of deal value in the model specifications.

[42] It is noted that one way to check whether terminations are good for acquirers under high political uncertainty is to compare the sequent financial performance (e.g., ROAs) between the termination sample and the completion sample. However, as the sample of acquisitions in this thesis only includes project-level acquisitions, financial data are not available at the project level. Due to data unavailability, only the announcement CAR cross-sectional regressions are conducted to test the impact of deal abandonment on acquiring firms' value.

face as they proceed with deal closings. *High PU* takes the value of '0' if policy uncertainty is lower than the sample average or high policy uncertainty lasts for fewer than three months ($0 \leq Prolonged\ high\ PU < 3$), '1' if high policy uncertainty lasts for more than three months but less than one year ($3 \leq Prolonged\ high\ PU < 12$), and '2' if high policy uncertainty lasts for more than one year without interruption ($Prolonged\ high\ PU \geq 12$), before a deal closing date. The model in column (2) is adjusted by interacting the categorical variable *High PU* with *Termination* and all other explanatory variables. Regression results are reported in column (3). The coefficient on the interaction term $Prolonged\ high\ PU \geqslant 12 \times Termination$ remains positive and statistically significant at the 1% level. Overall, the results in Table 6 indicate that, although the market normally reacts negatively to acquirers' deal abandonment decisions, the negative effect is likely to be moderated when such decisions are made amid protracted policy uncertainty.

One concern over the validity of these results is that completed and terminated acquisitions could be fundamentally different. Some unobservable deal- and firm-level differences between completed and terminated transactions may affect the results presented in Table 6. To address these concerns, a propensity score matching (PSM) method is employed to select a group of control deals with ex-ante similar observable characteristics as terminated transactions but successfully completed. Specifically, the first step is to estimate Model (2) in Table 5 Panel A, which accounts for different levels of factors affecting acquisition outcomes and that has the highest R^2 among the determinant models, to predict the probability of deal abandonment and obtain the propensity score. For each treated (terminated) transaction, a control (completed) deal is selected that has the closest propensity score within a caliper of 0.05 with replacement. This matching method generates a

matched sample of 401 acquisitions, and the summary statistics of the matched sample are reported in Table 7 Panel A. Next, the acquirers' resolution CAR cross-sectional models in Table 6 Panel B are re-estimated using the propensity score matched sample. Regression results are presented in Table 7 Panel B. The coefficients on the interaction terms between policy uncertainty and deal termination are all positive and statistically significant at the 1% level. Therefore, the results presented in Table 6 remain robust to the matched sample analysis.

[Insert Table 7 here]

Two propositions are considered to explain why the market "forgives" acquisition abandonment decisions during times of protracted policy uncertainty. First, a deal abandonment decision under high uncertainty could help reduce an acquiring firm's exposure to ex-post business risk. For some transactions with an option-like deal structure (e.g., acquiring an option to purchase a project), an abandonment prior to the full price being paid can help the acquirer avoid the sunk cost fallacy (Arkes and Blumer, 1985). Such abandonments would not severely impair acquirers' shareholder value in times of high uncertainty. Second, an alternative explanation is that MEE managers may strategically time the release of abandonment news under high uncertainty to avoid market penalties. Prior studies suggest that managers tend to hide bad news by announcing it during periods of high uncertainty or low market attention (e.g., Bird and Yeung, 2012; DeHaan et al., 2015). Hence, when managers foresee lingering policy uncertainty, they may delay disclosing acquisition abandonment decisions as they expect such news to not draw as much attention from market participants. However, the continuous disclosure requirements of the ASX do not allow for much discretion with respect

to timing news releases of contract terminations.[43] Although it is possible that managers tend to release bad news after business hours or on Fridays (DeHaan et al., 2015), ASX listing rules make it impossible for managers to accelerate or delay by months any announcements with respect to material acquisition termination. Otherwise, firms would fail to meet their disclosure obligations (ASX Listing Rules 3.1, 3.1A and 3.1B). Accordingly, the second explanation is less likely based on the ASX disclosure requirements.

Nevertheless, further evidence is provided that explains potential reasons why the market forgives acquirers' abandonment decisions under high uncertainty. By incorporating managers' explanations for acquisition abandonment (see Table 2) into acquirers' resolution CAR regression, a further test aims to examine whether investors react differently to deal terminations under uncertainty, based on managers' explanations. Specifically, a categorical variable *Reason* is introduced relating to the eight categories listed in Table 2: (1) Bad news about the acquired asset (resource potential/technicality); (2) Regulation/policy uncertainty; (3) Shift in exploration/business focus; (4) Funding difficulty (e.g., acquirer cannot secure financing in time); (5) Due diligence conditions not being satisfied; (6) Changes in economic/market conditions; (7) Other (e.g., legal disputes); and (8) Unknown. The variable *Reason* is set equal to zero if the announced deal is completed. Then, the specification in Table 6 Panel B is followed, and the two variables *Reason* and *Prolonged PU* are interacted. Of interest are coefficients on the interaction terms *Prolonged PU* × *Reason*, which capture whether investors who are observing protracted policy uncertainty respond differently to deal abandonment announcements, based on managers' explanations. Regression coefficients are

[43] See footnote 27 for details about the ASX continuous disclosure requirements.

reported in Table 8 with the full sample in column (1) and matched sample in columns (2) and (3).

[Insert Table 8 here]

The results in Table 8 suggest that, rather than being distracted under high policy uncertainty, investors do analyse acquisition abandonments based on managers' explanations. Specifically, investors react less negatively when an acquirer terminates a pending transaction under uncertainty to avoid "throwing good money after bad" (reason 1) (Arkes and Blumer, 1985). The coefficients on *Prolonged PU* × *Reason2* are also significantly positive, implying that the market prefers acquirers stepping away from deals subject to policy uncertainty or regulatory risk. However, if a proposed transaction is withdrawn owing to the acquirer's inability to secure acquisition funding (reason 4), then the market is unforgiving. The intuition is that, since external funding for MEEs' exploration activities is key to their survival, foregone investment opportunities due to financial reasons signal managers' inability to materialize further investments. Overall, the findings in Table 8 suggest that the firm-specific cost of deal abandonment is associated with *both* the degree of policy uncertainty and explanations that managers provide.

5. Robustness tests

5.1 Deal abandonment and acquirers' CEO ownership

Prior studies document that managers "listen to the market" when deciding whether to abandon proposed acquisitions that investors perceive to be value destroying (Luo, 2005). Liu and McConnell (2013) further argue that, if a CEO holds stock in an acquiring firm, then the acquirer CEO is likely motivated to

reverse the value-destroying transaction because the negative initial market reaction affects his/her personal wealth. As such, a deal abandonment decision could be driven by a CEO's desire to recoup his/her lost wealth at the initial deal announcement.

Although acquirers' initial CAR has been included in the determinant models in Table 5 to control for managers' learning from the market, two more controls are added: *CEO stock ownership* and *ΔCEO capital* (Liu and McConnell, 2013*)*. *ΔCEO capital* is the product of acquirers' initial announcement CAR and CEO stock ownership. It represents the change in an acquirer CEO's wealth caused by the initial market reaction. The deal termination determinants model is re-estimated by including these additional controls, and regression results are reported in Table 9. As CEO ownership data are missing for a number of observations in the sample, the analysis in column (1) is restricted to observations with CEO ownership, which reduces the sample size to 645. Alternatively, it is also assumed that missing CEO ownership equals zero ownership and regression results are reported in column (2). Consistent with the main findings in Table 5, the coefficients on *Prolonged high PU* in Table 9 remain positive and significant at the 5% level. The results thus confirm that protracted policy uncertainty contributes to acquisition abandonments.

[Insert Table 9 here]

5.2 Endogeneity of policy uncertainty measure

A potential concern with the BBD policy uncertainty index is endogeneity (Xu, 2020). This news-based policy uncertainty measure may coincide with other economic conditions, which induce acquisition abandonments. While different sets of macro-level variables are included in the model specifications to control for economic conditions, the effect of policy uncertainty on acquisition abandonment

decisions may still be confounded by other macro-level factors. Hence, an instrumental variable approach is adopted.

The instrument for prolonged policy uncertainty is the time (in hours) that the Parliament of Australia spent on legislation. If political leaders stall on legislative decisions or the outlines of a policy have not been agreed upon, then Parliament is likely to spend more time deliberating over proposed bills or legislative issues, which leads to lengthy debate and creates more uncertainty. Therefore, *Time on legislation* is likely to satisfy the relevance condition as an instrument for *Prolonged high PU*. However, it is not obvious that the time the Australian Parliament spends on legislation affects MEEs' acquisition abandonment decisions, because bills that are debated in Parliament include a broad range of topics (e.g., appropriations, human rights, migration policy).

The variable, *Time on legislation*, is sourced from the website of the Parliament of Australia. The website discloses the number of hours that Parliament spent on governmental legislation in each sitting period. Specifically, *Time on legislation* is calculated as the total number of hours Parliament spent on governmental legislation in the 6-month (or 2-quarters) period before the deal closing date.[44] Next, the determinants model of deal abandonment is estimated using the *Time on legislation* measure as an instrument. Results from the two-stage regression are presented in Table 10. The coefficient on *Prolonged high PU* in the second stage regression (column 2) remains positive and statistically significant (coef. = 0.076, *t*-stat = 2.04). Therefore, the inferences are robust to the instrumental

[44] Taking the second quarter (Q2) of 2013 as an example, during the sitting dates between 14 May and 16 May in 2013, Parliament spent 10 hours and 20 minutes considering legislation; for the period 17 –28 June in 2013, the number of hours spent deliberating legislation was 48 hours and 10 minutes. There are no other sitting dates in Q2 of 2013. Therefore, *Time on legislation* in Q2 of 2013 is 58.5 hours. Data can be obtained at: https://www.aph.gov.au/Parliamentary_Business/Statistics

variable estimation, supporting the view that protracted policy uncertainty has a significantly negative impact on acquisition outcomes.

[Insert Table 10 here]

6. Conclusion

This chapter investigates how policy uncertainty affects the acquisition process after initial deal announcements and acquisition outcomes. Using a hand-collected sample of project acquisitions by ASX-listed mining exploration entities in 1998-2017, this chapter provides robust evidence suggesting that policy uncertainty delays deal closings and triggers deal abandonment.

Specifically, findings show that a rise in policy uncertainty after initial acquisition announcements is associated with a longer deal resolution time and a higher likelihood of deal extensions. Importantly, prolonged high policy uncertainty is a key determinant of acquirers' deal abandonment decisions. The results are robust when controlling for other potential deal-breakers and using an instrumental variable approach. The findings in this chapter further demonstrate that market participants do consider acquirers' exposure to policy uncertainty. Deal abandonment decisions are penalized by the stock market to a lesser extent when high policy uncertainty lingers. These inferences still hold when using a propensity score matched sample of completed and terminated transactions.

Overall, the results of this chapter highlight that policy uncertainty is a first-order concern to acquirers in the acquisition interim stage. Though the test sample is confined to early-stage firms within Australia's mining industry, the findings in this chapter hold important implications for future research that examines how

uncertainty affects small firms' acquisition attempts and investors' reactions to corporate announcements.

Main Tables

Figure 1. Australian policy uncertainty index

This figure plots the Australian policy uncertainty index, developed by Baker, Bloom, and Davis (2016), during the January 1998–December 2017 period.

Source: http://www.policyuncertainty.com/australia_monthly.html

Table 1. Distribution of deal termination and renegotiation

Panel A presents the yearly distribution of project acquisitions announced by ASX-listed mining exploration entities (MEEs) between 1 January 1998 and 31 December 2017. Panel B presents a matrix of acquisition outcomes.

Panel A. Distribution of MEEs' project acquisitions by year

		Termination		Renegotiation	
Year	# of acquisitions	# of terminated deals	%	# of renegotiations	%
1998	10	3	30.0	1	10.0
1999	9	0	0.0	3	33.3
2000	11	4	36.4	1	9.1
2001	11	3	27.3	2	18.2
2002	15	5	33.3	2	13.3
2003	25	10	40.0	5	20.0
2004	30	12	40.0	4	13.3
2005	34	16	47.1	3	8.8
2006	34	11	32.4	2	5.9
2007	61	15	24.6	5	8.2
2008	66	31	47.0	8	12.1
2009	66	19	28.8	7	10.6
2010	88	25	28.4	12	13.6
2011	100	41	41.0	14	14.0
2012	86	39	45.3	17	19.8
2013	69	31	44.9	10	14.5
2014	77	23	29.9	13	16.9
2015	53	20	37.7	8	15.1
2016	91	17	18.7	10	11.0
2017	43	5	11.6	3	7.0
Total	979	330	33.7	130	13.3

Panel B. Matrix of acquisition outcomes

	No deal revision (A)	Deal revision (B)	
Completed (I)	N = 557 *(56.9%)*	N = 92 *(9.4%)*	Total = 649 *(66.3%)*
Terminated (II)	N = 292 *(29.8%)*	N = 38 *(3.9%)*	Total = 330 *(33.7%)*
	Total = 849 *(86.7%)*	Total = 130 *(13.3%)*	

Table 2. Termination reasons and deal resolution time

This table presents (1) managers' stated reasons for deal terminations and (2) deal resolution time. The sample includes project acquisitions announced by ASX-listed mining exploration entities (MEEs) between 1 January 1998 and 31 December 2017. The stated reasons are hand collected from the acquiring firms' announcements on Morningstar DatAnalysis Premium.

	(1) Frequency		(2) Time-to-resolution
Stated reasons for termination	N	Percent	(in months)
1. Asset-specific information about the acquired asset (resources potential/technicality)	98	28.9	12
2. Regulation/policy uncertainty	42	12.4	11
3. Shift in exploration/business focus	31	9.1	21
4. Funding difficulty (acquirer cannot secure financing in time)	30	8.8	13
5. Due diligence conditions not being satisfied	23	6.8	5
6. Changes in economic/market conditions	22	6.5	12
7. Other (e.g., legal disputes)	16	4.7	9
8. Unknown	77	22.7	12
Total	339	100.0	12

Table 3. Characteristics of completed versus terminated acquisitions
This table reports the mean value of various characteristics of completed versus terminated acquisitions at the deal-, firm- and macro-level. See Appendix 1 for detailed definitions and data sources of variables. The *t*-stat reported in column (4) are from two-sample *t*-tests for testing the difference in mean characteristics between completed and terminated deals. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) Completed deals (N = 649)	(2) Terminated deals (N = 330)	(3) Diff. (1) – (2)	(4) Diff. *t*-stat
Deal-level variables				
All stock (0/1)	0.21	0.12	0.09***	(3.86)
All cash (0/1)	0.17	0.14	0.03	(1.08)
Option-like deal (0/1)	0.31	0.62	-0.32***	(-9.78)
Initial CAR	0.10	0.06	0.04***	(2.59)
Resolution CAR	0.02	-0.06	0.08***	(4.97)
Deal resolution time (months)	7.30	12.21	-4.91***	(-6.71)
Firm-level variables				
Ln(Total assets)	15.79	15.57	0.23***	(2.60)
Financial leverage	0.89	1.26	-0.37	(-1.05)
Market-to-book ratio	-4.57	2.44	-7.01	(-0.96)
Cash holdings (%)	37.33	41.62	-4.29**	(-2.06)
Stock volatility	1.10	1.00	0.10	(1.33)
Past acquisition experience	4.91	4.11	0.81***	(2.84)
Marco-level variables				
Federal elections (0/1)	0.08	0.10	-0.02	(-0.97)
Implied volatility (VIX)	18.69	20.17	-1.48***	(-1.07)
Stock market returns (%)	0.45	0.13	0.32***	(-2.47)
Commodity price volatility	8.95	9.94	-0.99**	(-2.23)
Prolonged high policy uncertainty	2.46	3.27	-0.81**	(-2.42)
Prolonged high commodity price	40.08	44.93	-4.85*	(-1.91)
Prolonged positive stock market returns	1.51	1.24	0.27**	(2.45)
Prolonged high implied volatility	2.10	1.92	0.17	(0.62)

Table 4. Policy uncertainty, deal resolution time, and deal renegotiation

This table reports regression results of deal resolution time (Models 1–3) and the likelihood of deal revisions (Model 4) on changes in policy uncertainty during the post-announcement period. In Models 1–3, the dependent variable is *Deal resolution time*, which is the natural logarithm of one plus the duration (in months) between the date of the initial acquisition announcement and that of deal completion or termination. Model 4 is a multinominal logistic model. The dependent variable in Model 4, *Deal revision*, is a categorical variable with '0' = no deal revision (reference category), '1' = revising offer price, and '2' = extending deal closing date. *%ΔPU* is the relative change in the BBD policy uncertainty index during the interim period of an announced acquisition. Other variables are defined in Appendix 1. In all model specifications, standard errors are clustered by firm and year. *t/z*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Model 1	Model 2	Model 3	Model 4 (Multinominal Logit)	
				Reference category: Revision = 0	
Dependent Var.	*Ln(1+deal resolution time)*			*Revision = 1* (Revising offer price)	*Revision = 2* (Extending deal closing date)
%ΔPU	**0.002*****	**0.002*****	**0.004*****	**-0.001**	**0.006*****
	(5.25)	**(3.22)**	**(4.56)**	**(-0.26)**	**(2.86)**
Deal-level controls					
All stock	-0.181***	-0.254**	-0.250**	-0.201	-0.381
	(-2.60)	(-2.49)	(-2.40)	(-0.42)	(-0.97)
All cash	-0.018	0.027	0.065	0.721*	0.404
	(-0.23)	(0.25)	(0.63)	(1.89)	(1.31)
Initial CAR	-0.049	0.257	0.228	0.464	0.210
	(-0.43)	(1.62)	(1.37)	(0.62)	(0.55)
Option-like deal	0.483***	0.360***	0.375***	0.503	0.301
	(8.02)	(4.11)	(4.43)	(1.50)	(1.13)
Firm-level controls					
Ln(Total assets)	-0.004	-0.034	-0.028	-0.205*	-0.250**
	(-0.20)	(-0.82)	(-0.68)	(-1.70)	(-2.38)
Financial leverage	-0.011	0.007	0.008	-0.060**	-0.008
	(-1.29)	(0.44)	(0.59)	(-2.45)	(-0.53)
Market-to-book	0.000	-0.000	-0.001	0.002	-0.001
	(1.19)	(-0.08)	(-0.13)	(1.60)	(-1.49)
Cash holdings (%)	0.001	0.000	0.000	-0.018***	-0.003
	(0.57)	(0.27)	(0.28)	(-3.00)	(-0.63)
Stock volatility	-0.043*	-0.042*	-0.035	-0.244	0.079**
	(-1.76)	(-1.69)	(-1.54)	(-0.95)	(1.98)
Past acquisition experience	-0.012**	0.038*	0.037*	-0.033	0.001
	(-1.98)	(1.86)	(1.90)	(-0.88)	(0.04)

Marco-level controls					
%ΔCommodity price			0.003	0.003	-0.012
			(0.89)	(0.29)	(-1.20)
%ΔStock market return			0.000	-0.000	0.000
			(0.40)	(-1.09)	(0.21)
%Δ Implied volatility			-0.004**	0.001	-0.009*
			(-2.43)	(0.25)	(-1.90)
Federal election			-0.233*	-0.193	-0.581
			(-1.69)	(-0.31)	(-1.05)
Pre-announcement PU			0.518***	0.448	0.752*
			(3.12)	(1.02)	(1.96)
Pre-announcement commodity price			0.007	-0.000	-0.006
			(1.57)	(-0.03)	(-1.03)
Pre-announcement stock market return			2.121	-3.282	1.948
			(0.89)	(-0.40)	(0.28)
Pre-announcement implied volatility			-0.016	-0.018	-0.026
			(-1.05)	(-0.73)	(-1.12)
Constant	1.858***	2.084***	-0.873	-0.741	-1.069
	(5.09)	(3.13)	(-0.82)	(-0.26)	(-0.51)
Year FE	No	Yes	Yes	No	
Firm FE	No	Yes	Yes	No	
Adj-R^2 (Pseudo-R^2)	0.129	0.241	0.269	0.062	
N	979	792	792	979	

Table 5. Policy uncertainty and acquisition outcomes

The table presents results from regressions of deal termination on prolonged policy uncertainty. Panel A presents baseline results. In columns (1) – (3), the dependent variable is an indicator variable that equals 1 if an announced acquisition is terminated, and 0 otherwise. In columns (4) and (5), the dependent variable is a categorical variable, *Outcome*, which is a set of three possible outcomes for an announced acquisition: 0 = completed without deal revisions, 1 = renegotiated and completed, and 2 = terminated. Panel B follows the specifications in column (3) in Panel A and presents results from linear probability regressions (OLS) with year and firm fixed effects. Variables are as defined in Appendix 1. Standard errors are clustered by firm and year. *z/t*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Baseline results

	(1) Logit	(2) Logit	(3) Logit	(4) Ordered Logit	(5) Ordered Logit
Dependent Var.		*Completed = 0 Terminated = 1*		*Completed = 0 Renegotiated = 1 Terminated = 2*	
Prolonged high PU	**0.032****	**0.033****	**0.034****	**0.038*****	**0.037****
	(2.44)	**(2.09)**	**(2.03)**	**(2.64)**	**(2.49)**
Deal-level controls					
All stock		-0.420*	-0.419*	-0.432**	-0.437**
		(-1.89)	(-1.88)	(-2.05)	(-2.08)
All cash		-0.183	-0.186	0.048	0.044
		(-0.85)	(-0.85)	(0.25)	(0.23)
Initial CAR		-0.814**	-0.805**	-0.629**	-0.623**
		(-2.41)	(-2.35)	(-2.25)	(-2.21)
Option-like deal		1.248***	1.251***	1.321***	1.325***
		(7.87)	(7.88)	(9.00)	(9.01)
Firm-level controls					
Ln(Total assets)		-0.123**	-0.119*	-0.144***	-0.140**
		(-2.02)	(-1.94)	(-2.61)	(-2.53)
Financial leverage		0.027	0.025	0.019	0.019
		(1.41)	(1.30)	(1.16)	(1.10)
Market-to-book		-0.001	-0.000	-0.001*	-0.001
		(-0.83)	(-0.61)	(-1.66)	(-1.51)
Cash holdings (%)		0.001	0.002	-0.000	0.000
		(0.42)	(0.67)	(-0.12)	(0.10)
Stock volatility		-0.056	-0.063	0.014	0.010
		(-0.73)	(-0.83)	(0.63)	(0.43)
Past acquisition experience		-0.047**	-0.051***	-0.035**	-0.038**
		(-2.44)	(-2.64)	(-1.99)	(-2.21)
Marco-level controls					
Federal election		0.398	0.265	0.237	0.139
		(1.48)	(1.01)	(0.91)	(0.55)
Commodity price volatility		0.032**		0.024*	
		(2.10)		(1.74)	
Stock market returns		-6.579**		-7.190**	
		(-2.12)		(-2.42)	
Implied volatility		-0.016		-0.010	
		(-1.02)		(-0.65)	
Prolonged high commodity price			0.002		0.002
			(0.74)		(1.22)
Prolonged positive stock market returns			-0.117**		-0.101**
			(-2.57)		(-2.44)
Prolonged high implied volatility			-0.012		-0.008
			(-0.66)		(-0.53)
Pseudo-R^2	0.004	0.106	0.105	0.089	0.088
N	979	979	979	979	979

Panel B. OLS regression with fixed effects

	(1) OLS	(2) OLS	(3) OLS
Dependent Var.		*Completed = 0 Terminated = 1*	
Prolonged high PU	**0.008****	**0.012****	**0.012****
	(2.38)	**(2.16)**	**(2.14)**
Deal-level controls			
All stock		-0.027	-0.027
		(-0.46)	(-0.46)
All cash		-0.098	-0.099
		(-1.61)	(-1.60)
Initial CAR		-0.138	-0.138
		(-1.50)	(-1.49)
Option like deal		0.182***	0.182***
		(3.83)	(3.83)
Firm-level controls			
Ln(Total assets)		-0.004	-0.004
		(-0.16)	(-0.17)
Financial leverage		0.008	0.008
		(1.04)	(1.04)
Market-to-book ratio		-0.001	-0.001
		(-0.46)	(-0.46)
Cash holdings (%)		-0.002*	-0.002*
		(-1.84)	(-1.83)
Stock volatility		-0.011	-0.011
		(-0.96)	(-0.96)
Past acquisition experience		-0.017	-0.017
		(-1.49)	(-1.49)
Marco-level controls			
Federal election		0.046	0.045
		(0.60)	(0.58)
Prolonged high commodity price		-0.001	-0.001
		(-1.43)	(-1.43)
Prolonged positive stock market returns		-0.029**	-0.029**
		(-2.51)	(-2.51)
Prolonged high implied volatility		0.002	0.002
		(0.23)	(0.23)
Pre-announcement PU			-0.005
			(-0.08)
Year FE	No	Yes	Yes
Firm FE	No	Yes	Yes
Adj.R^2	0.005	0.253	0.252
N	979	792	792

Table 6. Policy uncertainty and acquirers' CAR around deal resolution announcements

This table reports the effect of policy uncertainty after initial deal announcements on acquirers' deal resolution CAR. Panel A presents acquirers' cumulative abnormal return (CAR) around the announcement date of deal resolution (either completion or termination), segmented by high policy uncertainty duration prior to the deal resolution date. Abnormal announcement returns are 5-day cumulative market-adjusted returns to acquiring firms, and the market benchmark is SIRCA's equally-weighted daily market return of all ASX-listed stocks. In Panel A, *t*-statistics in parentheses in rows (1) and (2) are from testing the hypothesis that acquirers' CARs are insignificantly different from zero. Row (3) reports results from testing the hypothesis that the difference in mean CARs between deal completions and terminations is zero (*t*-statistics in parentheses). Panel B reports cross-sectional analysis of acquirers' resolution CARs. The dependent variable is acquirers' 5-day CAR centered on the deal resolution announcement date. Other variables are defined in Appendix 1. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Summary of acquirers' cumulative abnormal return around deal resolution announcements

	(1)	(2)	(3)	(4)
Outcome	Full sample	0 ≤ Prolonged high PU < 3	3 ≤ Prolonged high PU < 12	Prolonged high PU ≥ 12
(1) Completion	0.0189***	0.0242***	0.0116	-0.0128
	(2.91)	(3.05)	(0.90)	(-0.70)
(2) Termination	-0.0581***	-0.0647***	-0.0628**	-0.0104
	(-3.97)	(-3.43)	(-2.06)	(-0.35)
(3) Diff. = Completion – Termination	0.0769***	0.0889***	0.0743**	-0.0024
t-stat.	(4.81)	(4.35)	(2.25)	(-0.07)

Panel B. Policy uncertainty and acquirers' CAR around deal resolution announcements

Dependent variable: acquirers' CAR around deal resolution announcements

	(1)	(2)	(3)
Termination	-0.108***	0.007	-0.025
	(-4.20)	(0.03)	(-0.11)
Prolonged high PU	-0.002	-0.003*	
	(-1.40)	(-1.70)	
Prolonged high PU × Termination	**0.007****	**0.008*****	
	(2.26)	**(2.74)**	
3 ≤ Prolonged high PU < 12			-0.007
			(-0.36)
Prolonged high PU ≥ 12			-0.027
			(-0.91)
3 ≤ Prolonged high PU < 12 × Termination			0.017
			(0.33)
Prolonged high PU ≥ 12 × Termination			**0.132*****
			(2.65)
Deal-level controls			
All stock	-0.009	0.012	0.012
	(-0.46)	(0.62)	(0.64)
All cash	-0.026	-0.003	-0.003
	(-1.21)	(-0.17)	(-0.15)
Initial CAR	0.013	0.032	0.034
	(0.43)	(1.28)	(1.34)
Option-like deal	0.004	-0.002	-0.002
	(0.27)	(-0.13)	(-0.15)
Firm-level controls			
Ln(Total assets)	0.002	0.006	0.005
	(0.30)	(1.00)	(0.94)
Financial leverage	-0.005*	-0.013***	-0.013***
	(-1.92)	(-3.31)	(-3.23)
Market-to-book	0.000	0.000***	0.000***
	(1.53)	(3.07)	(2.99)
Cash holdings (%)	0.000	0.000	0.000
	(1.35)	(0.99)	(0.91)
Stock volatility	-0.002	-0.005*	-0.005*
	(-0.46)	(-1.79)	(-1.72)

Past acquisition experience	0.001	-0.001	-0.001
	(0.28)	(-0.65)	(-0.62)
Marco-level controls			
Federal election	-0.022	-0.031	-0.030
	(-0.78)	(-0.89)	(-0.84)
Commodity price volatility	0.000	0.000	0.001
	(0.03)	(0.17)	(0.23)
Stock market return	-0.037	-0.027	-0.016
	(-0.12)	(-0.08)	(-0.05)
Implied volatility	-0.000	-0.000	-0.000
	(-0.03)	(-0.04)	(-0.18)
Constant	-0.000	-0.051	-0.044
	(-0.00)	(-0.50)	(-0.43)
All interactions	No	Yes	Yes
Year FE	Yes	Yes	Yes
Adj-R^2	0.030	0.042	0.039
N	948	948	948

Table 7. Policy uncertainty and acquirers' CAR around deal resolution announcements (PSM matched sample)

This table reports the effect of policy uncertainty after initial deal announcements on acquirers' deal resolution CAR using a propensity score matched control sample. Panel A reports summary statistics of the matched sample and differences in characteristics between the completed and terminated acquisitions. The matching procedure is performed as follows. First, the propensity score is obtained by estimating Model (2) in Table 5 Panel A to predict the probability of deal abandonment. For each treated (terminated) transaction, a control deal is selected that is successfully completed and that has the closest propensity score within a caliper of 0.05 with replacement. The *t*-statistics reported in column (3) are from two-sample *t*-tests for testing the difference in mean characteristics between completed and terminated deals. Panel B reports results of the acquirer CAR cross-sectional regressions using a propensity score matching sample. The regression model specifications are the same as those in Panel B of Table 6. Variables are as defined in Appendix 1. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Summary statistics of treated and matched samples

	Mean	Mean	*t*-test
Variable	Treated (Terminated deals)	Control (Completed deals)	*t* -stat
All stock	0.12	0.15	-1.15
All cash	0.10	0.12	-1.50
Option-like deal	0.61	0.62	-0.24
Initial CAR	0.06	0.05	0.85
Ln(Total assets)	15.59	15.56	0.30
Financial leverage	1.27	1.03	0.93
Market-to-book ratio	2.42	3.36	-1.39
Cash holdings (%)	40.99	41.88	-0.37
Stock volatility	1.00	0.98	0.46
Past acquisition experience	4.17	4.11	0.18
Prolonged high PU	3.18	2.94	0.60
Federal elections (0/1)	0.10	0.10	0.27
Commodity price volatility	9.55	10.18	-1.23
Stock market returns	0.09	0.27	-0.91
Implied volatility	19.78	20.44	-1.32

Panel B. Regression results

Dependent variable: acquirers' CARs around deal resolution announcements			
	(1)	(2)	(3)
Termination	-0.148***	-0.069	-0.090
	(-4.76)	(-0.21)	(-0.28)
Prolonged high PU	-0.007**	-0.007**	
	(-2.37)	(-2.37)	
Prolonged high PU × Termination	**0.011***	**0.012***	
	(2.82)	**(3.15)**	
3 ≤ Prolonged high PU < 12			-0.029
			(-0.84)
Prolonged high PU ≥ 12			-0.096**
			(-2.02)
3 ≤ Prolonged high PU < 12 × Termination			0.031
			(0.51)
Prolonged high PU ≥ 12 × Termination			**0.196***
			(3.13)
Controls	Yes	Yes	Yes
All interactions	No	Yes	Yes
Year FE	Yes	Yes	Yes
Adj-R^2	0.038	0.044	0.050
N	401	401	401

Table 10. Policy uncertainty, acquirers' deal resolution CAR, and deal abandonment reasons
The table follows the specification in Table 6 Panel B and reports acquirers' resolution CAR regression by incorporating the stated reasons for deal abandonment. The dependent variable is acquirers' 5-day CARs around deal resolution announcements. The categorical variable *Reason* corresponds to managers' explanations listed in Table 2: (1) Bad news about the acquired asset (resources potential/technicality); (2) Regulation/policy uncertainty; (3) Shift in exploration/business focus; (4) Funding difficulty (e.g., acquirer cannot secure financing in time); (5) Due diligence conditions not being satisfied; (6) Changes in economic/market conditions; (7) Other (e.g., legal disputes); and (8) Unknown. *Reason* is set equal to zero if the announced deal is completed. Control variables are the same as those in Table 6 Panel B. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) Full sample	(2) Matched sample	(3) Matched sample
Prolonged high PU # Reason1	**0.008****	**0.012*****	**0.014*****
	(2.14)	**(2.80)**	**(3.07)**
Prolonged high PU # Reason2	**0.009****	**0.012****	**0.013****
	(2.06)	**(2.57)**	**(2.52)**
Prolonged high PU # Reason3	0.003	0.003	0.005
	(0.49)	(0.45)	(0.68)
Prolonged high PU # Reason4	0.019	0.025*	0.025*
	(1.40)	(1.65)	(1.67)
Prolonged high PU # Reason5	-0.022*	-0.018	-0.014
	(-1.79)	(-1.49)	(-1.08)
Prolonged high PU # Reason6	0.001	0.005	0.007
	(0.07)	(0.40)	(0.58)
Prolonged high PU # Reason7	0.004	0.006	0.005
	(0.21)	(0.31)	(0.22)
Prolonged high PU # Reason8	-0.001	0.001	0.004
	(-0.13)	(0.22)	(0.58)
Reason1	-0.135***	-0.167***	-0.184***
	(-4.22)	(-4.78)	(-4.88)
Reason2	-0.128***	-0.157***	-0.167***
	(-3.68)	(-4.27)	(-4.02)
Reason3	-0.049	-0.074	-0.097*
	(-1.10)	(-1.56)	(-1.86)
Reason4	-0.260**	-0.304**	-0.315**
	(-2.09)	(-2.33)	(-2.39)
Reason5	-0.077	-0.109	-0.128
	(-0.73)	(-1.06)	(-1.23)
Reason6	0.033	-0.008	-0.017
	(0.62)	(-0.15)	(-0.29)
Reason7	-0.115	-0.153	-0.175
	(-1.00)	(-1.33)	(-1.41)
Reason8	-0.021	-0.046	-0.071*
	(-0.63)	(-1.28)	(-1.77)
Prolonged high PU	-0.003**	-0.006***	-0.007**
	(-2.26)	(-3.01)	(-2.54)
Controls	Yes	Yes	Yes
Year FE	No	No	Yes
Adj-R^2	0.054	0.076	0.054
N	948	401	401

Table 9. Policy uncertainty, acquisition outcomes, and CEO ownership
This table follows the specification of Model 2 in Table 5 with additional control variables, *CEO ownership* and *ΔCEO capital*. The dependent variable *Outcome* is an indicator variable that takes a value of 1 if an announced acquisition is terminated, and 0 otherwise. *ΔCEO capital* is the change in stock capital owned by an acquirer's CEO, calculated as the product of the acquirer's initial deal announcement CAR and CEO stock ownership. Other variables are as defined in Appendix 1. Standard errors are clustered by firm and year. *z*-statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable:	*Outcome (Termination = 1)*	
	(1) Non-missing CEO ownership	(2) Missing CEO ownership is assumed as zero
Prolonged high PU	**0.0396****	**0.0341****
	(2.06)	**(2.12)**
Deal-level controls		
All stock	-0.7313**	-0.4236*
	(-2.32)	(-1.90)
All cash	-0.1979	-0.1879
	(-0.74)	(-0.87)
Initial CAR	-0.7689	-0.9796***
	(-1.35)	(-2.65)
Option-like deal	1.3501***	1.2498***
	(7.24)	(7.87)
ΔCEO capital	2.7050	3.9402
	(0.73)	(1.22)
Firm-level controls		
Ln(Total assets)	-0.1255	-0.1283**
	(-1.52)	(-2.10)
Financial leverage	0.0428**	0.0273
	(2.02)	(1.44)
Market-to-book	-0.0010	-0.0006
	(-1.20)	(-0.88)
Cash holdings (%)	0.0035	0.0013
	(1.00)	(0.48)
Stock volatility	-0.0352	-0.0721
	(-0.58)	(-0.81)
Past acquisition experience	-0.0080	-0.0473**
	(-0.36)	(-2.44)
CEO ownership	1.0419	0.4911
	(1.51)	(0.74)
Marco-level controls		
Federal election	-0.0401	0.3883
	(-0.12)	(1.42)
Commodity price volatility	0.0161	0.0328**
	(0.83)	(2.16)
Stock market returns	-8.7815**	-6.6272**
	(-2.07)	(-2.14)
Implied volatility	-0.0151	-0.0168
	(-0.73)	(-1.05)
Constant	0.6939	1.0298
	(0.49)	(0.98)
Pseudo-R^2	0.120	0.108
N	645	979

Table 10. Policy uncertainty and acquisition outcomes (2SLS with an instrument variable)
This table follows Model 2 in Table 5 and reports results of a two-stage regression using *Time on legislation* as an instrument for *Prolonged high PU*. *Time on legislation* is the total number of hours the Parliament of Australia spent on governmental legislation in the 6-month period preceding the quarter of the deal closing date. Other variables are as defined in Appendix 1. *t*-statistics are reported in parentheses. This table also reports tests of under-identification (Kleibergen-Paap LM statistic with critical *p*-value in parentheses) and weak instruments (Kleibergen-Paap Wald rank *F*-statistic) based on Kleibergen and Paap (2006). *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Dependent variable: Outcome (Termination = 1)

	First-stage	Second-stage
Time on legislation	**0.038*****	
	(8.84)	
Prolonged high PU		**0.076****
		(2.04)
Controls	Yes	
Test of under-identification	64.123	
	(<0.001)	
Test of weak instruments	62.997	
	(<0.001)	
Adj-R^2	0.213	
N	956	

Appendices

Appendix 1. Variable Definitions

Variable	Definition	Data Source
Policy uncertainty variables		
Prolonged high PU	The run of consecutive months with high BBD policy uncertainty index (above the sample mean) during the sample period.	The news-based Australian uncertainty index constructed by Baker, Bloom, and Davis (2016). Available at: www.policyuncertainty.com/index.html
ΔPU%	Relative change in policy uncertainty, calculated as ($PU_{resolution} - PU_{initial}$) $PU_{initial}$ and expressed as a percentage, in which $PU_{resolution}$ and $PU_{initial}$ are the average 3-month policy uncertainty index before the deal resolution and initial announcement date, respectively.	
Deal-level variables		
Outcome (0,1)	An indicator variable that takes a value of 1 if an announced acquisition is terminated, and 0 otherwise.	
Outcome (0, 1, 2)	A categorical variable that takes a value of 0 if an announced acquisition is completed without deal revisions, 1 if renegotiated and completed, and 2 if terminated.	Hand collected from Morningstar DatAnalysis Premium
Deal revision (0, 1, 2)	A categorical variable with '0' = no deal revision, '1' = revision of offer price, and '2' = extension of deal closing date.	Hand collected from Morningstar DatAnalysis Premium
All stock (0, 1)	An indicator variable that equals 1 if a deal is fully paid by shares of the acquirer, and 0 otherwise.	Hand collected from Morningstar DatAnalysis Premium
All cash (0, 1)	An indicator variable that equals 1 if a deal is fully paid by cash, and 0 otherwise.	Hand collected from Morningstar DatAnalysis Premium

Option-like deal (0, 1)	An indicator variable that equals 1 if the announced acquisition is an option agreement (e.g., acquiring an option to purchase a project) or an earnout agreement (e.g., a portion of purchase price is paid upon the target achieving predetermined performance milestones).	Hand collected from Morningstar DatAnalysis Premium
Time-to-resolution	The number of months between the initial announcement and resolution date.	Hand collected from Morningstar DatAnalysis Premium
Initial CAR	The cumulative stock return to the acquiring firm over the window (–2, +2) centered on the initial announcement date, net of the equally-weighted return of all ASX-listed stocks over the initial announcement window.	SIRCA Databricks
Resolution CAR	The cumulative stock return to the acquiring firm over the window (–2, +2) centered on the announcement date of deal completion or termination, net of the return on the equally-weighted return of all ASX-listed stocks over the resolution announcement window.	SIRCA Databricks
Firm-level variables		
Ln(Total assets)	Natural logarithm of total assets	Morningstar DatAnalysis Premium
Market-to-book	Closing share price on financial year-end date divided by book value of equity per share.	Morningstar DatAnalysis Premium
Financial leverage	Total assets divided by book value of equity	Morningstar DatAnalysis Premium
Cash to total assets (%)	Cash holdings divided by total assets	Morningstar DatAnalysis Premium
Stock volatility	Standard deviation of a firm's monthly stock returns in the 12-month period prior to the initial deal announcement.	SIRCA SPPR
Past acquisition experience	Number of project acquisitions announced prior to deal *j* during the sample period.	Hand collected from Morningstar DatAnalysis Premium

CEO ownership	Proportion of ordinary shares held by CEOs at the financial year-end before the acquisition announcement.	Hand collected from financial reports
Macro-level variables		
Federal elections	An indicator variable that takes a value of 1 if the initial deal announcement date is within a 3-month period before a scheduled Australian federal election between January 1998 and December 2017, and 0 otherwise.	Australian Politics and Elections Database elections.uwa.edu.au/
Implied volatility	Average monthly VXO-implied volatility index from the Chicago Board Options Exchange (CBOE) in a 12-month period before the deal resolution date.	Bloomberg
Stock market return	Average monthly return on the ASX All Ordinaries Index in a 12-month period before the deal resolution date.	Bloomberg
Commodity price index	Non-rural Commodity Prices Index in a 12-month period before the deal resolution date.	Reserve Bank of Australia
Commodity price volatility	Standard deviation of monthly commodity price index in a 12-month period before the deal resolution date.	Reserve Bank of Australia
Prolonged high implied volatility	Run of consecutive months with high VIX (above the sample mean) before the deal resolution date.	Bloomberg
Prolonged positive stock market return	Run of consecutive months with positive stock market returns before the deal resolution date.	Bloomberg
Prolonged high commodity price	Run of consecutive months with a high commodity price index (above the sample mean) before the deal resolution date.	Reserve Bank of Australia
Time on legislation	Time (in hours) that the Parliament of Australia spent on governmental legislation in the 6-month period preceding the deal resolution date.	https://www.aph.gov.au/Parliamentary_Business/Statistics

Appendix 2. Examples of announcements

Appendix 2.1 Examples of announcement headlines of project acquisitions, deal renegotiations, and terminations

Project acquisition announcements

ASX Code	Company Name	Project Name	Announcement Date	Announcement Header
ACP	Audalia Resources Limited	Medcalf	19/01/2012	Acquisition of Medcalf Project
AHR	Anchor Resources Limited	Featherbeds	23/10/2007	Acquisition of Uranium Project
EXS	Exco Resources Limited	Windera	20/10/1999	Strike another Options Deal on Advanced Cobar Gold Project
IGR	Integra Mining Limited	Red Dale	20/06/2007	Option to Purchase Tenements Adjacent to Salt Creek
GOR	Gold Road Resources Limited	Dinninup	13/08/2007	Farm In Agreement - Dinninup Area South West WA
HHM	Hampton Hill Mining NL	Apollo Hill	07/01/2003	Agreement for the Purchase of Apollo Mining Pty Ltd

Deal renegotiation announcements

ASX Code	Company Name	Project Name	Announcement Date	Announcement Header
AGY	Argosy Minerals Limited	Albetros Diamond	15/07/2003	Renegotiation of Albetros Agreement
AIW	Ausroc Metals Ltd	Shenglong	29/09/2014	Amendment of Shenglong agreement
EMG	Emergent Resources	Beyondie Iron	16/03/2010	Beyondie Acquisition - Variation to Agreement
AMN	Agrimin Limited	Yunt Dag	05/07/2012	Extension to Yunt Dag Agreement
BDR	Beadell Resources Limited	Cracow	30/06/2008	Cracow Completion Date Extended
DEG	De Grey Mining Limited	Indee new	02/10/2017	Settlement of Indee Transaction extended by up to 12 months

Deal termination/completion announcements

ASX Code	Company Name	Project Name	Announcement Date	Announcement Header
DGO	DGO Gold Limited	Yandan	27/07/2011	Withdrawal from Heads of Agreement for the Yandan Project
OVR	Overland Resources	Trojan Gold	20/10/2017	Termination of Heads of Agreement- Trojan Gold Project
AAG	Aragon Resources Limited	Hot Chili	12/11/2009	Hot Chili Acquisition Not to Proceed
ESR	Estrella Resources Limited	Mt Edwards	06/01/2017	Completion of Acquisition Of Mt Edwards Lithium
GMR	Golden Rim Resources	Paguanta	28/07/2016	Golden Rim Completes Acquisition of the Paguanta Project
AGO	Atlas Iron Limited	Mt Webber	05/05/2009	Atlas exercises option to acquire iron ore rights in Pilbara
NMT	Neometals Limited	Nannine	05/07/2013	Lapse of Option to acquire Nannine Mining Centre

Appendix 2.2. Examples of deal termination/renegotiation announcements

1. Caeneus Minerals Ltd (CAD) announced on 11/09/2015

Title: TERMINATION OF AGREEMENT WITH POSEIDON NICKEL LIMITED

TERMINATION OF AGREEMENT WITH POSEIDON NICKEL LIMITED

Caeneus Minerals Ltd ("Caeneus" or "the Company") advises that it has **terminated** the binding agreement ("Agreement") with Poseidon Nickel Limited (ASX: POS) ("Poseidon") in relation to the Company's acquisition of contractual rights ("Acquisition") to mine the Silver Swan underground nickel mine.

The Company was unsuccessful in raising the required funds ("Capital Raising") to complete the Acquisition on or before the Completion date of 14 September 2015 due to current economic conditions and falling commodity prices.

2. CBH Resources Limited (CBH) announced on 17/06/2003

Title: Update on Elura Mine Purchase

Re: Update on Elura Mine Purchase

Consolidated Broken Hill Ltd and Pasminco Australia Ltd have agreed to extend the unconditional date for the purchase of the Elura Mine at Cobar, New South Wales, to 18th July 2003.

The extension of time is to seek greater certainty on two key issues – Workers Compensation Insurance premiums, and the rescission of the current Elura Consent Award enabling implementation of modern labour arrangements at the Mine.

Chapter 4: Economic consequences of fair value disclosure of earnouts

1. Introduction

This chapter investigates the economic consequences of fair value disclosure of earnouts required by IFRS 3 (2008). Earnouts (or contingent consideration) are provisions in acquisition agreements that provide sellers with a portion of future payments, conditional upon the target achieving certain agreed performance goals (Kohers and Ang, 2000). The revised IFRS 3 (2008), for the first time, requires an acquirer to recognize earnouts as a liability at fair value at the transaction date, with subsequent valuation adjustments recorded as gains or losses. Due to the inherent valuation uncertainty in earnout deals, this requirement inevitably adds to contracting costs and poses measurement difficulties (Asbra and Miles, 2009; Battauz et al., 2021). Practitioners thus suggest that acquirers should "think twice" before agreeing to contingent terms under the new accounting rule (KPMG, 2008; PricewaterhouseCoopers, 2010; 2012).

However, due to its counterintuitive income statement effects, fair value accounting for earnout liabilities may bring additional financial benefits to acquirers. Specifically, when an acquired target fails to achieve the earnout performance hurdles (i.e., bad news), the acquiring firm's earnout liability decreases, resulting in a fair value gain that increases the acquirer's income (i.e., good news).[45] As a result, acquirers are likely motivated under the new accounting rule to create a "cookie jar" reserve by overstating the initial earnout liability, with the subsequent reversal of unpaid earnout liability recorded as income (Nissim, 2019). By doing so, acquirers can, to some extent, book an accounting gain to hedge against the acquired target's poor performance over the earnout period. In other

[45] See Section 2.2 for a discussion of earnout accounting required by IFRS 3 (2008), as well as Appendix 2.2 for a simplified hypothetical example of accounting for liability-classified earnouts.

words, managers in the acquiring firm may opportunistically estimate the fair value of earnout liability, rather than faithfully present the acquirer's obligation. A lack of relevant market values and clear measurement guidance on fair valuing earnouts provide further reporting discretion (Gunn, 2017; Battauz et al., 2021). Therefore, this chapter aims to provide insights into the impact of fair value accounting on earnout transactions and acquirers' financial reporting.

Utilizing a sample of completed acquisitions by Australian acquirers in 2001-2017, this chapter presents three main sets of results. The first examination is whether IFRS 3 (2008) affects the use of earnouts. The initial sample consists of 7,104 acquisitions by public and non-public acquirers, 615 of which incorporate earnout agreements. It is found that the enactment of IFRS 3 (2008) is associated with a significant 8% increase in the use of earnouts by public acquirers, compared to non-public acquirers' transactions. The results are robust to different model specifications and matched sample analyses.

This finding has an intuitive explanation. Prior studies suggest that public firms are often coerced into deals that result in near-term improvements in profitability, while private firms are not subject to the same capital market pressures emphasizing short-term profits (Golubova and Xiong, 2020). In addition, owing to its counterintuitive income statement effects, fair value accounting for changes in financial liabilities—especially banks' own credit risk—has long been criticized as providing a way for big banks to seek higher reported profits (Gaynor et al., 2011;

Wu et al., 2016; Kaumann, 2019).[46] It is thus not surprising that fair value accounting for earnouts may likewise offer a short-term profit boost to public acquirers, thereby leading to an increase in the use of earnouts. This explanation is further supported by the finding that IFRS 3 (2008) is related to a 5% increase in the earnout size in public acquirers' transactions. The larger the size of an earnout, the larger the potential "cookie jar" that managers can create. Collectively, these results suggest that fair value accounting for earnouts affects both the frequency (use) and magnitude (size) of earnouts in public firms' acquisitions.

The second set of results in this chapter provides *direct* evidence on acquirers' overstatement of initial earnout liabilities. Using hand-collected data on the fair value disclosure of earnouts following IFRS 3 (2008), it is shown that 62% of the initial earnout liabilities are overstated. The mean (median) overstatement of the initial earnout liability, measured as the difference between the initial earnout estimate and actual earnout payments, is 47% (58%) of the initial estimate. In other words, acquirers on average only settle half of the initially estimated earnout liability, with the other half serving as a "cookie jar" reserve which, upon reversal, would be recognized as fair value gains over the earnout period. This accounting profit is also economically significant. Among all transactions with overstated earnout liabilities, the size of the fair value gain is on average 53.7% of the combined entities' absolute contemporaneous income. This evidence echoes professional groups' concern over the reliability of earnout fair value estimates.

[46] Under IAS 39, firms can choose to measure debt liabilities at fair value. When a firm's creditworthiness has deteriorated (improved), an accounting gain (loss) from its financial liabilities is recorded (Lipe, 2002). This counterintuitive income statement effect has caused a heated debate among academics, practitioners, and standard setters. The IASB, therefore, released a revised IFRS 9 *Financial Instruments*, effective for periods beginning on or after 1 January 2018, moving fair value adjustments of liabilities resulting from changes in credit risk from net income to other comprehensive income. See Section 2.2 for further discussion.

A plausible explanation for the significant overstatement of initial earnout liabilities is the inherent valuation uncertainty in earnout transactions. It is impractical for an acquiring firm to estimate a conclusive fair value of contingent consideration at the acquisition date, given that information related to future payouts is not available at that date. However, evidence is found that the overall upward bias in estimating earnout liabilities appears to be associated with acquiring firms' characteristics, rather than misvaluation of the target. Specifically, acquirers with a larger market capitalization, higher leverage, larger operating cash flow, and lower profitability are more prone to overstate the initial earnout liability, while the common proxies for valuation uncertainty in acquisitions do not explain such a decision. This is largely consistent with Jensen's (1986) free cash flow hypothesis, which predicts that firms with abundant cash flow but with few profitable investment projects are likely to make less value-creating acquisitions (Lang et al., 1991). In addition, as expected, high-quality auditors help curtail acquirers' discretion in reporting earnouts. Hence, the results imply that managers are likely to exploit the fair value accounting treatment of earnout liabilities for opportunistic reasons.

The third set of tests examines the link between fair value adjustments of earnout liability and goodwill impairment. As illustrated in the hypothetical example in Appendix 2.2, if an acquirer initially overstates the value of expected earnout payments that are included in the acquisition purchase price, then goodwill arising from the transaction would be overstated as well (Nissim, 2019). Accordingly, earnout fair value adjustments may not necessarily misrepresent the combined business's actual profitability if both a fair value gain on liabilities (i.e., a reversal of an earnout liability) and a valuation loss on assets (i.e., goodwill

impairment loss) are recognized in tandem (Barth et al., 2008; Cedergren et al., 2019). However, such a mechanical relation is not observed. This is somewhat expected as goodwill impairments in practice are widely perceived as "too little, too late" (KPMG, 2020). If acquirers intentionally seek an accounting profit through an overstatement of the initial earnout liability, then they would not impair the related goodwill, or perhaps only charge a smaller amount compared to the fair value gain from the earnout liability adjustment. This very observation is documented in this chapter. Further, the value relevance of goodwill is significantly moderated by the overstated initial earnout liability recognized in this type of transaction.

Overall, this chapter contributes to the literature in several ways. It sheds new light on how fair value accounting influences the contracting of earnouts. Prior studies examining earnouts largely focus on their role in resolving disagreements relating to a target's intrinsic value and serving as a financing source (e.g., Datar et al., 2001; Cain et al., 2011; Barbopoulos and Sudarsanam, 2012; Bates et al., 2018; Jansen, 2020). However, a lack of evidence exists as to whether and how the accounting treatment for earnouts would affect earnout transactions. Cadman et al. (2014) find that the initial earnout fair value estimates under SFAS 141(R) correspond with the underlying determinants of earnout use.[47] Allee and Wangerin (2018) argue that, after SFAS 141(R), acquirers with high-quality auditors are more likely to use accounting-based earnouts due to auditors' monitoring and verification roles in financial contracts. This chapter distinguishes from these studies in that it

[47] SFAS 141(R) and IFRS 3 (2008) have identical rules regarding the fair value accounting for earnouts. They are the first convergence project between the FASB and IASB, aiming to produce similar reporting on business combinations worldwide.

provides *direct* evidence on the economic consequences of the fair value disclosure of earnouts.

This chapter also adds to the literature that examines how accounting regulations affect acquisition terms. Early studies find that firms structure transactions to use the "pooling of interests" accounting method at the expense of outside shareholders (Aboody et al., 2000; Weber, 2004). Bonetti et al. (2020) suggest that mandatory disclosure requirements regarding ownership information impose significant costs on potential acquirers, thereby deterring acquisition activities. Recently, Kepler et al. (2020) show that the valuation discretion on earnouts allows acquiring firms to assign deal values that fall just below the antitrust scrutiny threshold. In this chapter, the findings suggest that the fair value accounting of earnouts allows managerial reporting discretion, leading to an increase in the frequency and magnitude of earnouts in acquisitions.

More broadly, the findings are of interest to analysts, academics, and accounting standard setters alike. This chapter provides novel evidence on the unintended consequences of fair value accounting for financial liabilities in a non-banking setting. The results imply that fair value estimates of earnouts do not faithfully represent acquirers' obligations in acquisitions. The significant upward bias in earnout fair value estimates is likely linked to acquirers' intention to obtain a "free" profit boost during post-acquisition periods. Therefore, analysts and academics should consider the impact of earnout fair value adjustments when examining acquirers' post-deal operating performance. Importantly, although the revised IFRS 9 *Financial Instruments* (effective since 2018) requires that changes in financial liabilities due to own credit risk be recognized in other comprehensive

income (OCI) instead of operating income, fair valuing earnout liabilities may also deserve the attention of standard setters.

The remainder of this chapter is organized as follows. Section 2 discusses the accounting treatment of earnouts. Section 3 describes the sample and data. Section 4 reports the impact of IFRS 3 (2008) on the use of earnouts. Section 5 examines the fair value disclosure of earnouts under IFRS 3 (2008), and Section 6 concludes this chapter.

2. Earnouts and accounting for earnouts

2.1 Earnouts in acquisitions

In an acquisition deal, a major cause of disagreement between the acquirer and target is different expectations about the latter's true value (Kohers and Ang, 2000). This disagreement can be resolved, to a large extent, by utilizing a two-part payment contract or earnouts. Earnouts defer a portion of the purchase price, which is contingent on the occurrence of specified future events or target achieving certain agreed performance hurdles (Kohers and Ang, 2000). These earnout thresholds are typically related to the target's post-acquisition performance (e.g., sales, earnings or project milestones), and the earnout period ranges from one year to more than five years (Datar et al., 2001).[48] Prior studies provide substantial empirical evidence that the use of earnouts is an effective contractual mechanism to bridge a valuation gap between the target and acquirer (Cain et al., 2011; Barbopoulos and Sudarsanam, 2012; Jansen, 2020), to retain target management (Cadman et al., 2014), or to serve as a source of financing for constrained acquirers because a fraction of the acquisition payment is deferred (Bates et al., 2018). Hence, earnouts

[48] See Appendix 2.1 for examples of earnout terms in acquisition contracts.

are used mostly in acquisitions of private targets or in certain sectors with high business uncertainty.

2.2 Accounting for earnouts and financial liability

In January 2008, the IASB issued a revised version of IFRS 3 in order to "…*enhance the relevance, reliability and comparability of information provided about business combinations and their effects*." Effective for business combinations occurring in fiscal years on or after 1 July 2009, IFRS 3 (2008) fundamentally changes the accounting treatment of earnouts and significantly expands the earnout-related information to be disclosed. Prior to IFRS 3 (2008), disclosure of earnout-related information was minimal; earnouts were recognised only when contingencies were resolved and earnout payments were made. Under IFRS 3 (2008), however, an acquirer must recognize and present contingent payment as a liability or equity at fair value at the acquisition date, *regardless* of the level of probability or measurement reliability. Specifically, when earnout payments are in the form of cash payments and/or equity payments settled with a variable number of shares, earnout fair values are recorded as liabilities. An earnout is classified as equity at fair value if the contingent payment is in the form of equity settled with a fixed number of shares.[49] In addition, liability-classified earnouts are remeasured at subsequent reporting dates, with fair value changes recognized as gains or losses during the post-closing period. An equity-classified earnout is not remeasured and its subsequent settlement is accounted for within equity.

[49] In fact, most earnouts are classified as liabilities under the new accounting rule. For example, Cadman et al. (2014) show that only three percent of earnout provisions are classified as equity in the US. The proportion of equity-classified earnouts in this sample is less than five percent.

Proponents of the revised earnout accounting argue that the new rule improves transparency in reporting an acquiring firm's obligation. Like other forms of consideration in an acquisition, an earnout arrangement is inherently one of economic considerations in negotiations between a buyer and seller. "Although the amount of the future payments the acquirer will make is conditional on future events, the obligation to make them if the specified future events occur is unconditional" (IFRS3.BC346). Therefore, delaying recognition of contingent consideration, or totally ignoring it, does not faithfully represent an acquirer's economic consideration exchanged at the transaction date, causing financial reporting to be incomplete and less useful for making economic decisions (IFRS3.BC346-347).

However, the proposed accounting treatment of earnouts was met with substantial resistance by accounting professionals. One particular concern is the reliability with which the fair value of performance-based contingent consideration can be measured. The new accounting rule "… is contrary to the frequently underlying cause for contingent consideration, which is that the fair value is not reliably determinable" (Bhatt, 2005).[50] Acquirers with earnout arrangements face many difficulties in determining the fair value of future earnout payments. The mandated fair value approach requires buyers to consider a series of issues at the transaction date, including the probabilities of the target meeting certain performance thresholds, the level of risk in achieving the earnout, and what type of discount rate should be used, among other factors (Chandra and Guj, 2012). As one can imagine, acquirers, targets, and market participants may all have drastically different opinions about these issues and their underlying assumptions. Thus,

[50] See, for example, Bhatt (2005) for a Letter of Comment, from the Director of Corporate Accounting and Reporting at Cisco Systems, on the Exposure Draft on the proposed changes in earnout accounting.

earnout liabilities "recognised in such circumstances are likely to be highly subjective and unrepresentative of the most likely outflow of benefits ultimately required to settle the obligation" (Pitchford, 2005), resulting in financial statements that are less reliable and comparable.

Another significant concern is the counterintuitive income statement effects of fair value accounting for changes in earnout liabilities. IFRS 3 (2008) requires acquirers to remeasure all liabilities for contingent payments at fair value at subsequent reporting dates. An increase (decrease) in the earnout liability signals that the target is more (less) likely to achieve a set of predetermined goals, but has a negative (positive) effect on earnings because of a fair value loss (gain) recognized (Cadman et al., 2014). The resulting financial reporting may lead to a misinterpretation of the combined entities' profitability, given that financial statement users interpret the gains presented in income statements as economic good news and losses as bad news (Riedl and Srinivasan, 2010; Gaynor et al., 2011). Acquirers are thus incentivized to take advantage of investors' common perception of positive income statement items and exploit the new accounting rule for opportunistic reasons.

Earnouts aside, fair value accounting for financial liabilities in the banking industry has long been controversial (Barth et al., 2008). Under IAS 39 or IFRS 9 *Financial Instruments*, banks can choose to measure financial liabilities at fair value. When a bank's own credit risk changes, any unrealized gains or losses from debt revaluation are recognized in the income statement. This causes counterintuitive financial reporting results in that banks increase earnings when their credit quality deteriorates (Lipe, 2002). Critics call the fair value accounting for financial

liabilities a "fuzzy math" (Kaumanns, 2019),[51] a result of lobbying by big banks "looking for ways to find profits" (Rice, 2012). More importantly, prior studies provide both experimental and empirical evidence validating the heated debate over fair value accounting for financial liabilities. These studies show that even professional financial statement users incorrectly assess fair value gains of financial liabilities as positive signals and fair value losses as negative signals (Gaynor et al., 2011), and also show that managers have used this accounting treatment opportunistically (Wu et al., 2016; Chung et al., 2017).

In response to the controversy, the IASB released a revised IFRS 9 *Financial Instruments*, effective for periods beginning on or after 1 January 2018, requiring changes in the fair value of a liability resulting from own credit risk to be presented in other comprehensive income (OCI) rather than net income. However, some argue that including debt valuation adjustment gains and losses in OCI still misstates shareholders' equity, since accumulated OCI is a component of equity (Lachmann et al., 2015; Cedergren et al., 2019). Taken together, an investigation of the consequences of fair valuing earnout liabilities in the M&A setting would be of interest to investors, academics, and accounting standard setters alike.

3. Sample

In this chapter, specific samples are selected based on the focus of the tests and related data requirements. An initial sample of completed acquisitions by Australian acquirers is obtained from Thomson Financial's Securities Data Company (SDC) database. The initial sample includes acquisitions announced by Australian public

[51] See, for example, "Wall Street Says –2 + – 2 = 4 as Liabilities Get New Bond Math," Bradley (2008), *Bloomberg* and "After Year of Heavy Losses, Citigroup Finds a Profit," Dash (2009), *New York Times*.

and non-public firms between January 1, 2001 and December 31, 2017, with a minimum transaction value of $1 million. The sample is also restricted to transactions in which the acquirer purchases at least 50% of the target equity. The initial sample comprises 7,104 completed acquisitions by 4,390 public acquirers and 2,714 non-public acquirers. Earnout deals are identified if the "Consideration offered" item in SDC is labelled as *Earnout*. In total, 615 earnouts are used in Australian acquirers' transactions over 2001–2017.

The second test sample is restricted to transactions by public acquirers with non-missing data on book value of assets and sufficient data to construct explanatory variables. Accounting information for public acquirers is obtained from the Aspect Financial database and stock price data from the Securities Industry Research Centre of Asia-Pacific (SIRCA). Auditors and corporate governance variables for public acquirers are from Thomson Reuters' Connect 4. These procedures result in a sample of 3,907 completed acquisitions by public acquirers, with 3,413 of them acquiring non-public targets and 493 incorporating earnout agreements.

To explore acquiring firms' disclosure of earnouts under the fair value accounting requirements, a sample of 311 earnouts announced during the post-IFRS 3 (2008) period is utilized. Earnout fair value estimates and subsequent adjustments under the new accounting rule are hand-collected from acquirers' financial reports. Note that the analysis covers post-acquisition financial data for each transaction over its earnout period. For example, if an acquiring firm announces a three-year earnout transaction in 2017, then the subsequent disclosure is monitored for earnout estimates or payments, as well as acquisition-specific goodwill impairment, until the earnout liability is settled or until the end of the three-year earnout period in

2020. Earnout-related information (e.g., predetermined performance measures/hurdles) is collected from acquisition announcements that are available on the Morningstar DatAnalysis Premium database.

4. IFRS 3 (2008) and the use of earnouts

4.1 Empirical prediction

The main hypothesis in this chapter is that the new accounting treatment of earnouts under IFRS 3 (2008) will increase the likelihood of public acquirers using earnouts. Prior studies have identified the main benefits of using earnouts in acquisitions, including a reduction in misvaluation risk between the target and acquirer, and a means of financing for constrained acquirers (e.g., Cain et al., 2011; Cadman et al., 2014; Bates et al., 2018). These benefits are expected to remain constant over time, while the new accounting treatment of earnouts may provide acquirers with additional financial benefits in the form of short-term "cookie jar" reserves. Thus, acquirers are more likely to employ earnouts in their transactions after the enactment of IFRS 3 (2008).

To test this prediction, a difference-in-difference approach is adopted with non-public acquirers as the control sample. Non-public acquirers could be a comparable group to public acquirers with respect to the use of earnouts. The ubiquitous benefit of using earnouts to bridge the valuation gap between acquisition parties or to alleviate acquirers' financial constraints also applies to private acquirers (Jansen, 2020). Nevertheless, private firms are less motivated to boost short-term profitability because they do not face the same capital market pressure to focus on near-term performance (Golubova and Xiong, 2020). For example, Chen et al. (2016) find that, during the acquisition interim period, targets understate

performance, and much of that understatement is used to overstate public acquirers' post-acquisition earnings. Further, empire-building is less of a concern in private firms due to less separation of ownership and control (Jensen and Meckling, 1976). Therefore, it is argued that public acquirers have greater incentives under IFRS 3 (2008) than private acquirers to incorporate earnouts in their transactions in order to obtain a "free" post-acquisition performance boost.

4.2 Summary statistics of earnout use by public and non-public acquirers

Summary statistics of earnout use by Australian public and non-public acquirers are presented in Table 1. Specifically, this table reports the acquirer-target listing status for acquisitions by Australian firms between 2001 and 2017. There are 4,390 acquisitions announced by public acquirers, with 536 (12.2%) involving earnout provisions. This is similar to the proportion of earnout use in the US, but is much lower than that in the UK, as reported in prior studies. For example, Barbopoulos and Sudarsanam (2012) show that the use of earnouts by public acquirers in the UK is 26% over the period 1986–2008. Bates et al. (2018) show that the corresponding rate in the US is 10% over the period 1988-2014. By comparison, the use of earnouts is relatively rare when acquirers are non-public. On average, a mere 2.9% of non-public acquirers employ earnout arrangements, slightly higher than the 1.4% in the US (Jansen, 2020). In addition, among all the 615 earnouts, 611 (99%) involve non-public targets (subsidiary or private). This is consistent with the literature in that earnouts are primarily used in acquiring non-public targets.[52]

[52] The prevalence of earnouts in deals involving private targets is consistent with the literature. For example, Barbopoulos and Sudarsanam (2012) document that around 99% of earnouts in the UK market involve non-public targets, while Bates et al. (2018) show 78% of earnouts in the US involve non-public targets as well.

[Insert Table 1 here]

Figure 1 plots the earnout use in acquisitions of non-public targets by calendar year. This figure distinguishes transactions by public acquirers from those of non-public acquirers. The vertical line indicates the adoption year of fair value accounting for earnouts. Prior to 2009, the difference in the use of earnouts between public and non-public acquirers is relatively stable at around 6%, although both groups increased their use of earnouts over 2007–2010. A possible explanation for both groups' increased use of earnouts is the heightened level of uncertainty in acquisitions caused by the global financial crisis. This is consistent with the effectiveness of earnouts in mitigating valuation uncertainty in acquisitions. Nevertheless, the gap in the use of earnouts between public and non-public acquirers became wider in subsequent years. For example, the use of earnouts by public acquirers rose from 13% of their transactions in 2009 to a peak of 25% in 2014 and 2015, while the rate for non-public acquirers remains only 5%. The trend illustrated in Figure 1 suggests that IFRS 3 (2008) appears to be associated with a substantial increase in public acquirers' use of earnouts.

[Insert Figure 1 here]

4.3 IFRS 3 (2008) and the use of earnouts in acquisitions

To estimate the change in likelihood of public acquirers using earnouts before and after the implementation of IFRS 3 (2008), the following baseline model is employed with acquisitions by non-public acquirers included as the control group:

$$Pr(Earnout = 1) = \alpha + \beta Public\ acquirer \times Post + \lambda \mathbf{C} + FE + \epsilon, \qquad (1)$$

in which the dependent variable, *Earnout*, equals 1 if an acquisition is labelled in SDC as an earnout deal, and 0 otherwise. *Public acquirer* is an indicator variable

that equals 1 if the acquiring firm is a public firm, and 0 otherwise. *Post* is an indicator variable set to 1 for acquisitions completed in fiscal years ending on or after the effective date of IFRS 3 (2008). Of particular interest is β, the coefficient on the interaction term $Public\ acquirer \times Post$, which captures the change in the likelihood of earnout use by public acquirers after the fair value accounting for earnouts takes effect.

C is a vector of control variables that may affect the use of earnouts in acquisitions. They include *Non-public target*, which is well documented in the literature as a key determinant of earnout use (Datar et al., 2001). *Cross border* and *Cross industry* transactions are controlled because adverse selection problems are more pronounced in deals between targets and acquirers operating in different countries or industries (Allee and Wangerin, 2018). The variable *Ownership (%)* is included, which represents the acquirer's ownership in the target after an acquisition is completed. In addition, due to the unavailability of financial data for non-public targets, industry-level variables are used to control for target characteristics: *Target industry volatility* and *Target industry Q*, which are measured in the year before the acquisition announcement date. For example, Cain et al. (2011) find that targets from industries with greater return volatility and greater industry Tobin's Q are more likely to be involved in earnout arrangements. *Ln(Deal value)*, the transaction value, is also included as a proxy for target size (Kohers and Ang, 2000). Further, *Acquirer acquisition experience* is included as acquirers with more acquisition experience are better able to screen targets (Aktas et al., 2013) and may be less likely to use earnouts to mitigate valuation uncertainty. The specification in the baseline model also includes (1) industry fixed effects (2-digit SIC) to control for variation across industries in how deals are structured, and

(2) year fixed effects to isolate cross-sectional variation. Standard errors are clustered at the industry and year level to account for any correlation of residuals within an industry and a calendar year (Petersen, 2009). Equation (1) is estimated using linear probability regression (OLS) and results are reported in Table 2 Panel A.

[Insert Table 2 here]

Table 2 Panel A reports the baseline regression results. Consistent with predictions, the coefficient on *Public acquirer* × *Post* is positive and significant at the 1% level in all model specifications. In column (1), explanatory variables only include *Public acquirer*, *Post*, *Public acquirer* × *Post*, and *Non-public target*. The coefficient estimate on the interaction term is 0.084 and statistically significant at the 1% level, suggesting a positive effect of the new accounting rule on public firms' likelihood of using earnouts. Similar results are obtained in columns (2) and (3) when various deal and target characteristics as well as year and industry fixed effects are all included. Because earnouts are used mostly in acquisitions of non-public targets, the test sample in column (4) is restricted to acquisitions with non-public targets. In column (5), the test sample is further restricted to the post-IFRS (2005) period to mitigate concerns about the potential impact of the mandatory adoption of IFRS (2005) in Australia on acquisition activities. The inferences remain the same.

The estimated coefficients on other control variables are also consistent with expectations. For example, the likelihood of using earnouts is higher for acquisitions involving non-public targets (i.e., privately-held targets or subsidiaries) due to the lack of comparable purchase prices. Acquirers engaging in cross-border

deals are more likely to incorporate earnout provisions because information asymmetry between an acquirer and a foreign target is more acute than that in domestic deals. Targets in industries with greater return volatility and growth opportunities, which are often related to valuation uncertainty, are more likely paid with earnouts. Moreover, as expected, acquirers with more acquisition experience are less likely to employ earnouts. Overall, the baseline analysis suggests that since IFRS 3 (2008), public acquirers are more likely to incorporate earnout agreements in their transactions than non-public acquirers, controlling for other factors.

4.4 Validity of the baseline results

4.4.1 Robustness tests

In this section, a battery of robustness tests is conducted to verify the validity of the main results. The robustness checks are based on the sample of non-public targets only, as their earnouts are most prevalent. In the first robustness test, additional controls for macroeconomic conditions are included, which may affect acquisition activities or earnout contracting during the sample period. Specifically, the Australian *Economic policy uncertainty* is included to control for general economic and policy shocks during the sample period (Bonaime et al., 2018). In addition, as Bates et al. (2018) show that market-wide supply and cost of credit influences the propensity to use earnouts, the variable *RBA spread* is included to capture the variation in general credit risk in Australia. *RBA spread* is measured as the difference between the Reserve Bank of Australia's (RBA) lending rate and the three-year government bond rate. Industry-level acquisition activity is further included to capture variations in M&A volume within the target's industry during the sample period (Allee and Wangerin, 2018). *Ind. M&A activity* is measured as the log of one plus the number of acquisitions announced in the target's industry

during the concurrent calendar year. Regression results presented in column (1) of Panel B (Table 2) show that the inferences still hold after controlling for these macro-level variables.

It is possible that the changed propensity of using earnouts after the adoption of IFRS 3 (2008) may not be affected solely by acquirers' listing status. Thus, the interaction terms of *Post* with all other explanatory variables are added, and these regression results are reported in column (2). Again, the coefficient on the interaction term *Public acquirer* × *Post* remains positive and statistically significant at the 1% level.[53] This evidence is consistent with the view that the main benefits of using earnouts remain constant over time, while the new accounting treatment offers public acquirers an additional financial benefit and motivates earnout use. In addition, the models in columns (1) and (2) are re-estimated using different industry classifications: Fama-French 48 industry (columns 3 and 4), and the Global Industry Classification Standard (GICS) code used for companies listed on the Australian Stock Exchange (ASX) (columns 5 and 6).[54] When these models are re-estimated, the results continue to show a positive coefficient on *Public* × *Post*, statistically significant at the 1% level.

Although the *observable* deal and target characteristics are controlled for in the regressions discussed earlier, some *unobservable* factors may still be associated with both the listing status of acquiring firms and the decision to use earnouts. To mitigate this concern, the baseline model is re-estimated using matched samples,

[53] The coefficients on other interaction terms are not reported for brevity's sake. None of the coefficients on other interaction terms are significant except for *Post* × *Ownership*, which is positive and significant at the 5% level. This result suggests that acquirers purchasing greater ownership of the target are more likely to use earnouts after the adoption of the revised IFRS 3.

[54] Note that when different industry classifications are used, variables *Cross industry*, *Tar. industry volatility*, *Tar. industry Q*, and *Ind M&A activity* are re-measured using the respective industry classification.

and regression results are reported in Table 2 Panel C. Specifically, public and non-public acquirers are matched using three methods: nearest neighbour propensity score matching (PSM) (column 1), Kernel PSM (column 2), and Entropy balancing (column 3). The covariates used in the three matching methods are the same as those used in column (4) of Panel A. With respect to regression models, an OLS regression is used in column (1) and weighted least squares regressions are used in columns (2) and (3). The coefficients of primary interest in Panel C are all consistent with the main analysis.

Finally, the industry fixed effects are replaced with firm-level fixed effects, given the interest in public acquirers' *within-firm* differences in the propensity to use earnouts before and after IFRS 3 (2008), as opposed to similar before-after differences in non-public acquirers that are not subject to capital market pressures to focus on short-term profits. To this end, firm fixed effects are used in the baseline model and standard errors are clustered at the firm level. Table 2 Panel D presents the regression results. The coefficient estimate on *Public acquirer* × *Post* in column (1) remains significantly positive. In addition, interacting *Post* with all other explanatory variables (column 2) produces unchanged results. Overall, these findings suggest that fair value accounting for earnouts significantly increases the propensity of public acquirers use of earnouts in acquisitions. The results are robust to different model specifications and a matched sample analysis.

4.4.2 Comparison of IFRS 3 (2008), SFAS 141 (R), and FRS 102

The above results are based on a sample of M&As made by Australian acquirers. In this section, potential implications of our results on other M&A markets are discussed. For comparison, the US and UK markets are chosen for two main reasons. First, the UK, US and Australia are three countries in which earnouts

are used the most (for the period 2000–2015, see Viarengo et al. 2018). An investigation on how an accounting rule shapes acquisition activities in major M&A markets would be of interest. Second, IFRS 3 (2008) and SFAS 141 (R) were the first convergence project between the IASB and FASB, aiming to create a single high-quality standard on business combinations worldwide. Quite the contrary, the UK amended the EU-adopted IFRS 3 (2008) and did not permit the measurement of contingent consideration at fair value through profit or loss.[55] Therefore, if fair value accounting for earnouts motivates public acquirers to use earnouts, as documented above, then a similar trend is expected in the US but not the UK.

To visually present the comparison, Figure 2 plots the use of earnouts in acquisitions of non-public targets by public and non-public acquirers in Australia, the US and UK (from left to right), respectively. The graph in the middle is Fig.2 from Jansen (2020) and the other two graphs are plotted using M&A data from the SDC database. The two lines in each graph distinguish transactions between public (dotted lines) and non-public (solid line) acquirers. It is clear that in both Australia and the US, the gap between the two lines becomes wider since 2009 when fair value accounting for earnouts took effect. In contrast, in the UK setting in which the use of earnouts is the most popular (Barbopoulos and Sudarsanam 2012; Viarengo et al. 2018) but fair valuing earnouts is prohibited (see FRS 101, AG1(d); FRS 102 paras. 19.12–19.13), such a trend is not observed. A falsification test is performed using the baseline model in equation (1) and a sample of acquisitions by UK acquirers. As shown in Table 2 Panel E, the regression coefficients on *Public*

[55] Under UK GAAP or FRS 102, the estimated amount of contingent consideration is included in the cost of the combination at the acquisition date if it is probable (that is, more likely than not) that the amount will be paid and can be measured reliably. Subsequent changes to estimates of contingent consideration adjust the cost of the combination, i.e., adjusted against goodwill [FRS 101 para AG1(d)]; [FRS 102 paras 19.12–19.13]. See "A comparison of IFRS and UK GAAP (FRS 102)".

acquirer × *Post* are all not significantly different from zero. This result further validates the inferences.

[Insert Figure 2 here]

Figure 2 suggests that the enactment of fair value accounting for earnouts in both Australia and the US appears to have motivated public acquirers to use earnouts. Nevertheless, it is argued that the institutional background in Australia makes it easier for Australian managers to create cookie jar reserves via earnout accounting than their US counterparts. For example, firms listed on the ASX do not have to report quarterly financial results. Investors are thus less likely to become aware of managers' manipulation of earnout liabilities due to the less frequent reporting. In addition, small- and mid-cap firms tend to use earnouts in their acquisitions (see Table 3 for summary statistics of acquiring firms' characteristics), while these firms in Australia have little analyst coverage and are less likely to appoint Big-4 auditors. This indicates comparatively weak market monitoring. In sum, we suggest that fair value accounting for earnout liabilities provides an option for "lemons" (e.g., Wu et al. 2016), leading to a rise in public acquirers' use of earnouts.

4.5 IFRS 3 (2008) and the use of earnouts by public acquirers

One remaining concern is that public acquirers' firm-level characteristics are not included in the model specifications. Therefore, to be consistent with prior earnout studies, the tests in Section 4.5 focus only on public acquirers.

4.5.1 Descriptive statistics

The incidence of earnouts in public firms' acquisitions is summarized for each year in Table 3 Panel A. Notably, the use of earnouts has become increasingly

popular over time. Before 2008, 7.8% of acquisitions involved contingent consideration. Beginning in 2008, there was a marked jump in earnout use, as more than 10% of acquisitions employed contingent payments in that year. Earnout use by public acquirers reached a peak at around 25% in 2014. Table 3 Panel B shows some clustering of earnout use in certain industries.[56] For example, acquirers from the following three sectors are more likely to employ earnouts in their transactions: information technology (24.9%), health care (18.7%), and industrials (16.1%). Following a similar pattern, 29% of the targets in information technology involve earnout agreements, followed by 16% in industrials and 15% in health care. This is consistent with earnouts often being used in acquisitions with high valuation uncertainty.

[Insert Table 3 here]

Table 4 Panel A illustrates several significant univariate differences between transactions with and without earnouts (in Australian dollars). First, 99% of the targets in earnout deals are non-public targets. On average, acquirers in earnout transactions are only 40% of the firm size of acquirers in transactions without earnouts, while the relative deal size is five percentage points larger. As might be expected, earnouts are more likely to be used in cross-border deals and when acquiring targets in high growth sectors, since valuing these targets is inherently difficult due to high information asymmetry. Moreover, acquirers with fewer proceeds from issuing equity are more likely to engage in earnout deals. This is consistent with earnouts being a financing mechanism for acquirers with financial

[56] Note that the distribution of acquisitions and earnouts by industry reported in Table 3 Panel B is for descriptive purposes only. The industry fixed effects in the regressions are based on SIC industry codes.

constraints (Bates et al., 2018). Further, the proportion of Big-4 auditors in acquirers with earnouts is 54%, significantly lower than the 62% proportion of Big-4 auditors in acquirers without earnouts. Interestingly, 63% of earnout transactions are observed during the post-IFRS 3 (2008) period. Overall, Table 4 Panel A highlights the pervasive heterogeneity in transaction characteristics across deals with and without earnout agreements among public acquirers.

Table 4 Panel B reports summary statistics of earnout deals over the sample period, segmented by the enactment year of the revised IFRS 3 in 2009. The mean transaction value is roughly $64 million before IFRS 3 (2008) and shrunk to $34 million after IFRS 3 (2008). In contrast, the mean earnout size, defined as the maximum amount of earnout payments divided by the total transaction value, increased from 31% to 39% following the new accounting rule. There is also a significant decrease (17%) in the number of Big-4 auditors involved in acquisitions with earnouts. Taken together, transaction characteristics of earnouts exhibit significant changes with the adoption of IFRS 3 (2008).

[Insert Table 4 here]

4.5.2 Determinants of earnout use and earnout size

To corroborate the main results in Section 4.3, a further test considers whether the revised earnout accounting rule affects earnout use and earnout size in public acquirers' transactions, controlling for acquirer firm-level characteristics. Similar to equation (1), a linear probability model is specified below:

$$Pr(Earnout = 1) = \alpha + \beta\ Post + \lambda \mathbf{X} + FE + e, \quad (2)$$

in which the dependent variable, *Earnout*, and the explanatory variable of interest, *Post*, are as defined in equation (1). **X** is a vector of potential factors that influence

the use of earnouts in acquisitions. In addition to the control variables specified in equation (1), several acquirer characteristics are included in equation (2). For example, both deal size (*Ln(Deal value)*) and acquirer size (*Acquirer market cap*) are included. An alternative specification includes *Relative size*, which captures the relative bargaining power between the acquirer and target (Kohers and Ang, 2000). In addition, Bates et al. (2018) find that financially constrained acquirers are more likely to use earnouts, and Allee and Wangerin (2018) document that acquiring firms with high-quality auditors tend to incorporate earnouts after the new accounting rule. Hence, further controls are added to model specifications, including acquirer leverage (*Acq leverage*), operating cash flow (*Acq CFO*), cash proceeds from issuing equity (*Acq proceeds from issues*), and auditors (*Big4*). Target industry fixed effects are included in equation (2), and regression results are reported in Table 5 Panel A.

[Insert Table 5 here]

Consistent with predictions, the enactment of IFRS 3 (2008) is positively related to the use of earnouts in public acquirers' acquisitions. The coefficient on *Post* in Table 5 Panel A is all positive across different model specifications and statistically significant. The coefficients on other control variables are largely in line with the findings of prior studies. For example, the coefficient on *Acq market cap* is significantly negative, suggesting that smaller acquiring firms are more likely to employ earnouts to seek extra protection afforded by earnouts than large firms. This is due to small acquirers' relatively lower levels of bargaining power and lack of information-gathering resources (Kohers and Ang, 2000). Similarly, the positive coefficient on *Relative size* in column (3) supports the view that acquiring firms with lower bargaining power have a higher likelihood of using earnouts to reduce

valuation risk. Earnouts are also more favoured in cross-border transactions because of higher valuation risk. Further, consistent with the findings in Bates et al. (2018), the coefficient on *Acq proceeds from issues* is significantly negative, suggesting that acquiring firms' financial constraints influence the arrangement of acquisition payments.

Next, whether the enactment of IFRS 3 (2008) affects earnout size is examined. A Tobit regression is used in which the dependent variable is equal to the ratio of the maximum earnout payment to the transaction value (Kohers and Ang, 2000; Cain et al., 2011). Regression results are reported in column (1) of Panel B. Consistent with the univariate analysis in Table 4, the average earnout size is positively associated with the new earnout accounting. Specifically, the average earnout size increases by 5% after IFRS 3 (2008), controlling for deal, target, and acquirer characteristics. The proxies for valuation uncertainty in acquisitions also explain the earnout size. For example, acquirers purchasing targets in either a different sector or in industries with higher return volatility and growth opportunities are more likely to employ a larger earnout. This is consistent with the view that earnouts are larger when valuation uncertainty is higher (Cain et al., 2011).

It is noted that the results presented in column (1) may be subject to potential self-selection biases (Cain et al., 2011). To mitigate this concern, Heckman's (1979) two-step procedure is used with results reported in columns (2) – (4). The first-stage selection equation (column 2) includes three variables: acquirer market capitalization, non-public target, and relative size, as well as industry fixed effects. As shown in column (2), these variables are significantly correlated with the likelihood of an acquisition using earnout. Controlling for the potential selection bias (including the inverse mills ratio in the second-stage regression), the

coefficient on *Post* from the second-stage regressions in columns (3) and (4) remains qualitatively the same. Overall, the results in Table 5 confirm that fair value accounting for earnouts is an important factor influencing both the use and size of earnouts in public acquirers' transactions.

5. Fair value estimates of earnouts under the revised IFRS 3

The results in Section 4 show a strong link between the revised IFRS 3 and the use of earnouts by public acquirers. In this section, the underlying mechanisms through which public acquirers may exploit the new accounting treatment of earnouts are investigated. Specifically, a detailed discussion of earnout fair value estimates under the IFRS 3 (2008) is presented, and potential factors contributing to a possible estimation bias in the valuation of earnouts are examined.

5.1 Summary statistics of earnout fair values

Fair value disclosures of earnouts after IFRS 3 (2008) are hand-collected from acquirers' financial reports. Sample selection is reported in Table 6 Panel A with a total of 311 earnouts completed under the new accounting standard. In the sample, 23 reverse acquisitions and 32 asset acquisitions are excluded due to their distinct accounting treatment, as are 53 earnout deals without related fair value disclosure. For example, some acquirers with more than one acquisition may pool together deal consideration amounts, making it difficult to ascertain the earnout value. In other cases, acquirers make no reference to earnouts in their financial reports. In addition, when an earnout is conditional on continued employment of the target management, the contingent consideration is expensed as an employment cost (6 cases), which is often observed in acquisitions of legal service firms. Further, in order to test the subsequent fair value adjustments, the following are excluded: 17 equity-classified earnouts and 20 deals in which either the target firm is divested or the acquiring

firm is delisted before the end of the earnout period. The final sample consists of 160 liability-classified earnouts with subsequent fair value disclosure available.

[Insert Table 6 here]

Table 6 Panel B summarizes fair value estimates of the initial earnout liabilities and subsequent earnout payments. On average, the mean (median) fair value of initial earnout liability estimated at the transaction date is 79% (99%) of the maximum earnout amount.[57] This suggests that the majority of acquirers in Australia tends to value the earnout liability towards the maximum earnout payment at the acquisition date. However, over the earnout period, only 53% of the maximum earnout amount is actually paid on average, with the median payment ratio at 42%.

To capture the frequency and magnitude of potential "cookie jar" reserves created with these earnout transactions, two variables are constructed: (1) *Overstatement*, which is the difference between the initial earnout liability estimate and actual earnout payment divided by its initial estimate, and (2) *Overestate_dummy*, an indicator variable that equals 1 if *Overestatement* is positive, and 0 otherwise.[58] Overall, 62% of the initial earnout liabilities are overstated. This implies that 62% of liability-classified earnouts contribute a fair value gain to acquirers' net income through a reversal of unpaid earnout liabilities. More strikingly, among the overstated earnout liabilities, the mean magnitude of

[57] As a comparison, the mean and median value of *Earnout initial FV/ Earnout max* is 54% in the US as reported in Cadman et al. (2014), who utilize a sample of 225 earnouts after SFAS 141 (R).
[58] To illustrate the calculation of *Overstatement*, assume that an acquirer records an earnout liability of $3 million at the transaction date (ignoring the discount rate). If the acquirer (1) pays $1 million over the earnout period, then *Overstatement* is calculated as (3 – 1)/3 = 0.67; if the acquirer (2) does not pay any earnout, then *Overstatement* is calculated as (3 – 0)/3 = 1; and if the acquirer (3) pays $3 million over the earnout period, then *Overstatement* is equal to 0.

overstatement is 86% of the initial earnout estimate, with a median value of 100%. This indicates that the potential size of the "cookie jar" reserve in these earnout transactions is almost as large as that of the contracted earnout size.

The impact of the potential "cookie jar" reserve on net income is reported in Table 6 Panel C. It shows that the size of the cookie jar reserve is economically significant. Among all earnouts with an initially overstated earnout liability, the fair value gains from unrealized earnout liabilities are on average 56% as large as the contemporaneous net income over the earnout period. Interestingly, acquiring firms with overstated earnout liabilities report a mean (median) profit of $61.2 (–$0.4) million that includes fair value gains over the earnout period. In comparison, firms that do not have fair value gains from adjustments of earnout liabilities deliver a mean (median) profit of $52.6 ($28.5) million. To better reflect the post-acquisition operating performance, the combined entities' net income over the earnout period is calculated by excluding earnout fair value gains and then scaled by the acquirer's total asset before acquisitions. It is clear that acquirers with overstated earnouts, on average, experience operating losses after acquisitions. Therefore, the descriptive results in Panels B and C of Table 6 provide preliminary evidence suggesting that managers are likely to exploit the fair value accounting of earnouts to hedge against lacklustre post-acquisition operating performance.

5.2 Overstatement of the initial earnout liability

The aim of this section is to investigate the underlying factors leading to the overstatement of initial earnout liabilities. Two basic propositions are considered. First, the overstated earnout liabilities are simply caused by fair value measurement errors. Earnouts are used in acquisitions because the intrinsic value of some targets is difficult to measure (e.g., targets are held privately or in industries with high

return volatilities). Given the inherent valuation uncertainty in earnouts, it is impossible for acquirers to accurately estimate future performance-based payouts at the transaction date. Thus, the overstatement of earnout liabilities reported in Table 6 is likely due to misvaluation of the target value. However, if measurement errors are the only or primary explanation, then it is expected that the frequency of observing fair value gains and losses from earnout liabilities will be roughly the same and with similar size. The evidence in Table 6 Panel C suggests that this is not the case.

The second proposition posits that acquirers have overstated their initial earnout liabilities opportunistically. This is largely motivated by the counterintuitive income statement effects of fair valuing financial liabilities. In terms of earnout accounting, any unpaid earnout liability would be recorded as a gain when the target does not meet the performance threshold. The positive impact on earnings from the fair value adjustment offsets the bad news that arises from the lower-than-expected performance of the newly acquired target. In contrast, an understatement of the initial earnout liability would result in a fair value loss when the actual earnout payment is larger than previously estimated, due to the acquired target's better-than-expected performance. Given that acquirers are generally incentivized to report higher profits, acquirers with contingent consideration are more likely to overestimate their initial earnout liabilities than underestimate them.

To test these predictions, multivariate analysis is used to regress earnout *Overstatement (%)* on ex-ante deal, acquirer and target characteristics, as well as on macroeconomic conditions. Results are reported in Table 7. Consistent with the managerial opportunism view, acquirers with ex-ante higher leverage, greater operating cash flows, and lower profitability are associated with larger

overstatements of initial earnout liabilities. This also supports Jensen's (1986) free cash flow hypothesis that firms with abundant cash flow but few profitable investment projects are likely to make acquisitions that are less value-creating (Lang et al., 1991). In addition, overstatement of earnout liabilities is higher for larger firms with a relatively smaller deal size. This result makes sense, as larger deals may attract more attention, which may pose greater difficulties in establishing accounting reserves. Importantly, little evidence is found supporting the misvaluation explanation. Except for cross-border deals, almost all proxies for valuation uncertainty in earnouts (e.g., cross industry, target return volatility and growth opportunities, upfront cash payment, macroeconomic uncertainties) are not related to an upward fair value estimate on earnout liabilities. Not surprisingly, the negative coefficient on *Big 4* suggests that high-quality auditors help prevent acquirers' reporting discretion.[59] Overall, the results in Table 7 imply that the significant overstatement of earnout liabilities appears to be driven by acquiring firms' opportunism rather than misvaluation in acquisitions. These findings thus cast doubt on whether earnout liabilities are faithfully presented in acquirers' financial statements.

[Insert Table 7 here]

5.3 Earnout liabilities and goodwill

One might argue that earnout fair value adjustments may not misrepresent the combined entities' actual profitability if both a decrease in earnout liability value and a corresponding decrease in the acquired asset value are recognized in tandem

[59] The results still hold when controlling for internal governance variables: (1) *Independent director*, which equals 1 if the acquiring firm has independent directors, and 0 otherwise; and (2) *Top 20 (%)*, a proxy for blockholding in the acquiring firm. *Top 20 (%)* is measured as the top 20 shareholders' shareholding percentage in the acquiring firm.

(IFRS 3.BC 360). Since an overstated earnout liability increases the purchase price and inflates the acquisition-specific goodwill (as illustrated in the hypothetical example in Appendix 2.2), one would expect a mechanical relation to be observed in subsequent reporting periods between a gain from the elimination of the earnout liability (which signals the target's failure to achieve performance milestones) and an impairment charge to goodwill (which represents a decline in the acquirer's expected returns from investing in the target). If this is true, then a claim that acquirers overstate the initial earnout liability for the purpose of creating "cookie jar" reserves would not hold.

However, the summary statistics of fair value gains and contemporaneous goodwill impairment losses in Table 6 Panel C tend to rule out this possibility. Among all earnouts with fair value gains recorded during the earnout period, the average size of the gain is 56% of the absolute net income, while the average goodwill impairment loss only accounts for 10%. Regression analysis is also conducted using the model specification in equation (3) to test whether the likelihood and magnitude of goodwill impairment is related to earnout overstatement under IFRS 3 (2008):

$$\Pr(Imp = 1) \; or \; Imp(\%) = \alpha + \beta \times Reversal + \lambda \mathrm{C} + \epsilon, \qquad (3)$$

in which the first dependent variable *Imp* is an indicator variable that equals 1 if the acquisition-specific goodwill arising from the earnout deal is impaired during the earnout period, and 0 otherwise. The alternative dependent variable *Imp(%)* captures the magnitude of goodwill impairment, which is the absolute amount of goodwill impairment loss recognized during the earnout period, divided by transaction value. For ease of interpretation, a categorical variable *Reversal* is

constructed and equals 1 if the overstated earnout liability is partially reversed (or earnout is partially paid), 2 if the overstated earnout liability is fully reversed (no earnout is paid), and 0 if there is no reversal of the initially recognized earnout liability, over the earnout period. **C** represents a vector of control variables used in prior studies as determinants of goodwill impairment. For example, the variables *Acquirer ROA* and *CAR* are included to control for firm performance over the earnout period and deal quality, respectively (Hayn and Hughes, 2006). Also, *Acquirer market-to-book ratio* and *Acquirer leverage* are included, as Beatty and Weber (2006) suggest that goodwill impairments tend to decrease with a firm's growth opportunities and debt-contracting incentives. Specifically, **C** includes the variables *Cross border*, *Cross industry*, *Earnout size*, *CAR*, *Big 4*, *Goodwill/Deal value*, *Acquirer ROA*, *Acquirer market-to-book*, and *Acquirer leverage*. Regression results are reported in Table 8.

[Insert Table 8 here]

As can be seen in Table 8, there is no mechanical relation between a reversal of earnout liability and a downward adjustment of the goodwill asset. Rather, acquirers that fully reverse the initially estimated earnout liability are less likely to impair goodwill that arises from the earnout transaction (column 1) and, if they do, record a smaller impairment loss (column 2). The evidence from Table 8 further supports predictions that acquirers overstate the initial earnout liability in an attempt to improve post-acquisition reported performance.

5.4 Implications

Note that the results do not imply that all earnouts after 2009 are used by acquiring firms to boost post-acquisition operating profits. Earnouts are still an

effective contractual mechanism that helps acquirers mitigate valuation risk in acquisitions. An interpretation of the results is that fair value accounting for earnout liabilities drives the use of earnouts, because it enables managers to establish a short-term reserve for either a "hedging" or "profit boost" purpose. Therefore, this chapter documents a significant impact of fair accounting on earnout contracting and acquiring firms' financial reporting.

It is also important not to construe the documented evidence as an objection to fair valuing earnouts. The new accounting rule extends earnout-related disclosure available to investors and thus should benefit investors. For example, under the old accounting rule (i.e., IFRS 3 (2004)), investors had little information about the performance of earnouts during the post-acquisition period unless earnout payments were made. Hence, acquirers' regular reporting of earnout fair values, as required by IFRS 3 (2008), would enhance the transparency of acquiring firms' obligations if the accounting is done properly. This is one of the revised accounting standards' objectives. Nevertheless, the findings in this chapter do raise concerns that this objective may not be met if managers opportunistically exploit earnout accounting rather than faithfully presenting earnout-related information.

It is further noted that the establishment of these cookie jar reserves is a joint effect of fair value gains from a reversal of overstated earnout liabilities and, at the same time, no recognition of goodwill impairment. Although the lack of evidence of goodwill impairment appears to be a strong indication of managerial opportunism in such transactions, managers' decisions to adjust the value of earnouts and related goodwill are likely made at two different levels. One decision is to reverse an unpaid obligation related to a specific acquisition because the acquired target does not meet a predetermined earnout threshold (transaction level),

while a goodwill impairment decision is based on a range of impairment indicators at the cash generating unit (CGU) level. This means that a downward adjustment of earnout liabilities may not necessarily lead to goodwill impairment. However, regardless of the underlying reasons for the reluctance to impair, the results highlight the fact that managers are still able to obtain a non-trivial profit by overstating their initial earnout liabilities.

5.5 Value-creation effect of earnout deals

The previous analyses show that managers are likely to overstate earnout liabilities for opportunistic reasons. These results, in turn, lead to two related questions: (1) Do these earnout deals create value for acquiring firms' shareholders? (2) Are investors able to correctly assess earnout liabilities and related goodwill?

To address the first question, the value-creation effect of acquisitions is measured using the market-adjusted cumulative abnormal return (CAR) to the acquiring firm's stock over a five-day window around the acquisition announcement date (Barbopoulos and Sudarsanam 2012). The benchmark market return is the value-weighted daily return of all ASX stocks. Then, the acquirers' 5-day announcement CAR is regressed on earnout overstatement and present regression results in Table 9.

[Insert Table 9 here]

The regression results show that a larger overstatement of earnout liabilities is associated with a lower CAR around acquisition announcements. The coefficient on *Overstatement* is negative in column (1) and statistically significant at the 10% level. When replacing *Overstatement* with the categorical variable *Reversal* in column (2), the coefficients on *Partial reversal* and *Full reversal* are all negative

and statistically significant. Similar results are obtained after controlling for macro-level variables in column (3). This is consistent with the perceived quality of the announced earnout transactions or the contracted earnouts lacked substance.

An interpretation of the result is that under IFRS 3 (2008), acquiring firms' emphasis is shifted from the *economic-only* condition (the uncertainty about the acquired target's future performance) to *economic-plus-accounting* condition (the uncertainty about the acquired target's future performance plus a potential "hedging" reserve through earnout accounting). As such, acquiring firms may become less prudent in screening targets and, consequently, engage in less efficient deals. It is also possible that managers deliberately set unrealistic performance hurdles in the contract for an acquired entity in order to create "cookies" in the first place (i.e., AAER No. 3775). Accordingly, the market discounts the value created from such earnout deals that lacked substance. Importantly, this finding, combined with acquirers' characteristics underlying an overstatement of earnout liabilities, is largely consistent with Jensen's (1986) free cash flow hypothesis, which argues that firms with abundant cash flows but few profitable investment projects are more likely to make less-value-creating acquisitions than to return the excess cash flows to shareholders (Lang et al. 1991).

A value relevance test is further conducted on acquiring firms' year-end share price when acquirers' allocation of purchase price is first disclosed. If investors' estimates of an acquisition's future benefits are impounded in the acquirer's equity market value, then the reported fair values of the net assets acquired and goodwill in the transaction should be related to the acquirer's post-acquisition stock price (Wangerin 2019; Blann et al. 2020). As such, if acquirers overstate the value of goodwill via an overstatement of earnout liabilities, then the reported goodwill will

less accurately reflect the future benefits of announced acquisitions or, in other words, be less value relevant.

To test this prediction, a valuation model is used, in which a firm's market value is a function of its net assets (Wangerin 2019; Blann et al. 2020). Specifically, acquiring firms' post-deal stock price is regressed on the initial fair value estimates reported for the acquisition fiscal year. The model is illustrated in equation (4) with firm and time subscripts omitted:

$$\begin{aligned} Price = \alpha + \beta_1 BVE\_net + \beta_2 FV\ net\ assets\ + \beta_3 Goodwill\ + \lambda_1 BVE\_net \\ \times Overesate\_dummy + \lambda_2 FV\ net\ assets \\ \times Overesate\_dummy \\ + \lambda_3 Goodwill \times Overesate\_dummy + \epsilon\ , \end{aligned} \quad (4)$$

in which *Price* is the acquiring firm's stock price three months after the acquisition fiscal year-end date. To control for other classes of assets unrelated to the acquisition, *BVE_net* is included, which is defined as the book value of equity at the end of the acquisition fiscal year net of the transaction value. *FV net assets* represents fair value estimates of acquired net assets in an earnout transaction. It is calculated as the transaction value minus goodwill recognized at the transaction date. *Goodwill* is the allocation of the purchase price to goodwill. All explanatory variables are deflated by the number of shares outstanding.

To allow the parameters to vary across firms that may have different degrees of discretion in estimating earnout fair value, the indicator variable *Overstate_dummy* is interacted with different classes of assets in the combined business. A weaker association is expected between acquiring firms' post-deal stock price and the value of goodwill if acquirers overstate their earnout liabilities,

which in turn overstate related goodwill. In other words, the sign of the coefficient λ_3 for the interaction term in equation (4) is expected to be opposite to that of the coefficients β_3 on the main variable *Goodwill*. Table 10 presents the results.

[Insert Table 10 here]

Consistent with prior literature, regression results in column (1) indicate that, on average, fair value estimates for net assets are positively associated with equity market values (Wangerin 2019). When interaction terms are included in column (2), the association between firm value and the value of goodwill is weaker for acquirers with cookie jar reserves, which are obtained from an overstatement of earnout liabilities. Overall, the results suggest that investors appear to be able to assess the reported value of goodwill arising from earnout transactions.

6. Conclusion

This chapter investigates the economic consequences of fair value disclosure of earnouts in acquisitions. Utilizing a sample of Australian firms' completed acquisitions, this chapter presents evidence that fair valuing earnouts potentially allows acquiring firms to earn a non-trivial accounting profit during post-acquisition periods.

More specifically, it is found that the fair value accounting of earnouts, required by the revised IFRS 3 since 2009, leads to an increase in both the frequency and magnitude of earnout use in public acquirers' transactions. In addition, under the new earnout accounting rule, the disclosed fair values of earnout liabilities are grossly overstated and, thus, not a faithful representation of acquiring firms' obligations in acquisitions. Importantly, such an overstatement is related to acquiring firms' opportunism rather than valuation uncertainty in earnout

transactions. Further, investors seem to correctly assess goodwill and earnout liability estimates that arise from earnout transactions.

Note that the results in this chapter do not imply that all earnout transactions are conducted to obtain "free" profit boosts in post-acquisition periods. The main benefit of using earnouts is to mitigate valuation risk in acquisitions, while the revised accounting treatment allows for reporting discretion, which provides acquiring firms with additional financial benefits. This is an unintended consequence of the fair value accounting of earnout liabilities. Therefore, the findings in this chapter have important implications and suggest that financial statement users should back out these "misleading" fair value gains/losses from other "real" earnings. Further investigations on the impact of earnout accounting on acquisition contracting and managerial behaviour would be of interest.

Main Tables

Table 1. Acquirer-target listing status in acquisitions

This table reports listing status of acquirers and targets in completed acquisitions in Australia between 2001 and 2017.

Acquirer listing status	All acquisitions	Acquisitions with earnouts	Earnouts/all acquisitions	Target listing status	All acquisitions	Acquisitions with earnouts	Earnouts/all acquisitions
Public	4,390	536	12.2%	*Public*	690	4	0.6%
Non-public	2,714	79	2.9%	*Non-public*	6,414	611	9.5%
Total	7,104	615	8.7%	*Total*	7,104	615	8.7%

Figure 1. Earnout usage in acquisitions of non-public targets
This figure shows the percentage of transactions by year for non-public targets in which earnouts are used between 2001 and 2017. The graph distinguishes between transactions involving Australian public and non-public acquirers. The vertical line indicates the adoption year of fair value accounting for earnouts.

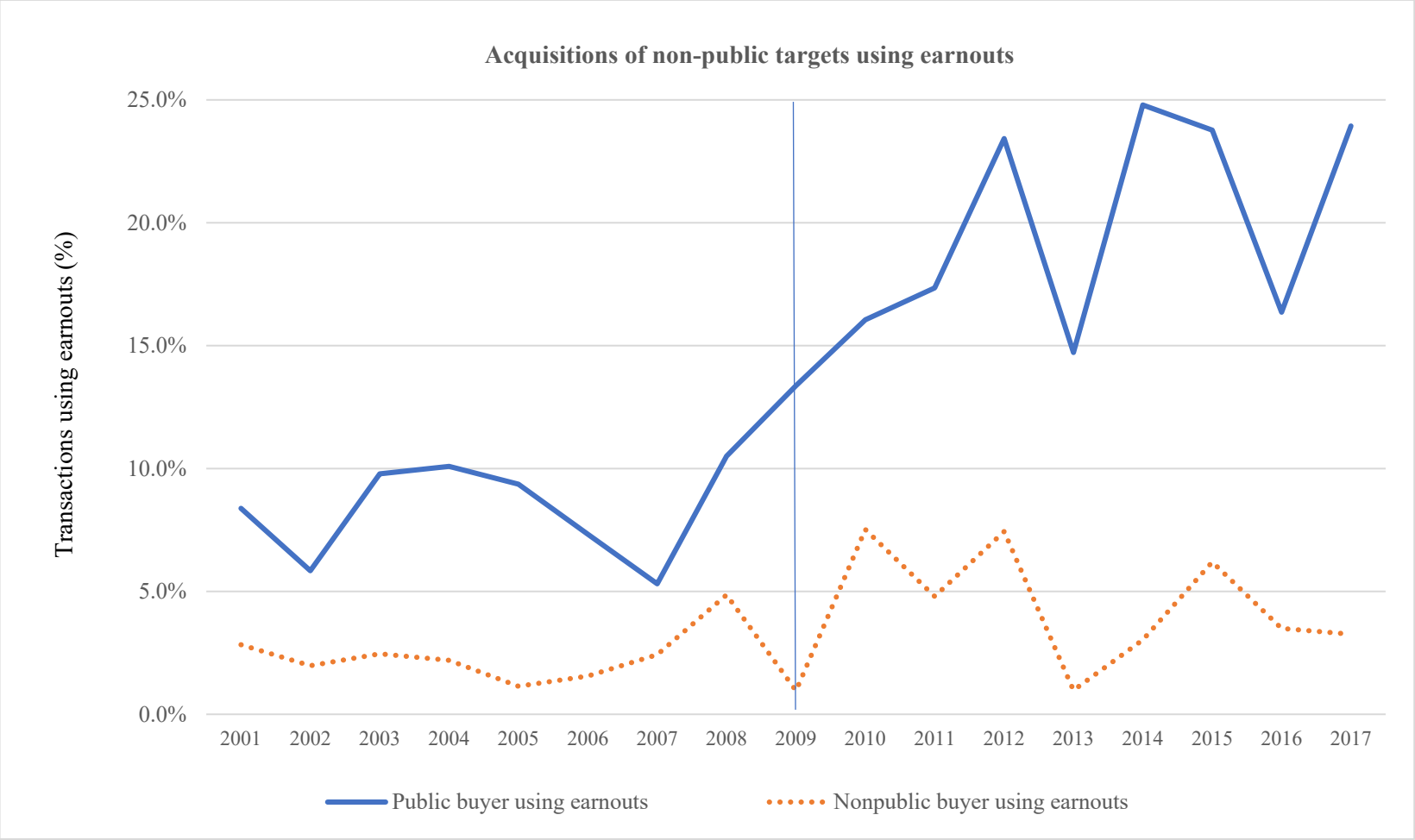
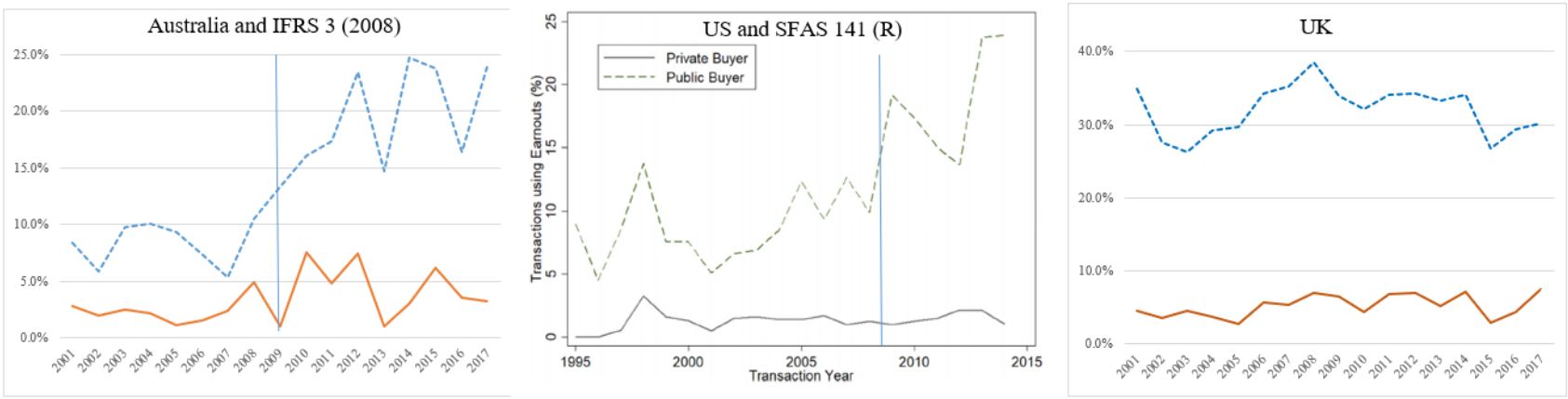


Figure 2. A Comparison of Earnout Usage in Acquisitions by Australian, US and UK Acquirers

This figure shows the use of earnouts in acquisitions of non-public targets by Australian, US and UK Acquirers (from left to right), respectively. The graph in the middle is Fig. 2 in Jansen (2020), and the other two graphs are plotted using the M&A data from SDC database. The two lines in each graph distinguish transactions between public (dotted line) and non-public (solid line) acquirers. The vertical line indicates the adoption year of fair value accounting for earnouts in Australia and the US.



Source: Jansen (2020) Fig. 2

Table 2. IFRS 3 (2008) and acquisitions using earnouts

This table reports OLS regression results of the effect of the revised IFRS 3 on earnout use by public acquirers. The dependent variable, *Earnout*, is an indicator variable that equals 1 if an acquisition is labelled as an earnout deal, and 0 otherwise. *Post* is an indicator variable that equals 1 if the acquisition is completed after the revised IFRS 3 (2008) took effect, and 0 otherwise. Panel A reports the results for the baseline analysis. In Panel B, the focus is on the sample of non-public targets only. Macroeconomic variables are included as additional controls, and different industry classifications are used. Panel C reports regression results based on matched samples. In Panel D, year and firm fixed effects are included. Panel E reports a falsification test using the UK sample and the baseline DID model. *t*-statistics are in parentheses and based on standard errors clustered by industry and year except for Panel D, in which t-statistics are based on standard errors clustered by firm. See Appendix 1 for variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Baseline analysis

	Dependent variable: Earnout (0/1)				
	(1) Full sample	(2) Full sample	(3) Full sample	(4) Acquisitions of non-public targets	(5) Acquisitions of non-public targets after IFRS (2005)
Public acquirer	0.084***	0.076***	0.074***	0.084***	0.098***
	(4.62)	(4.38)	(4.27)	(4.49)	(4.31)
Public acquirer* × *Post	**0.084*** **	**0.076*** **	**0.074*** **	**0.084*** **	**0.098*** **
	(4.62)	**(4.38)**	**(4.27)**	**(4.49)**	**(4.31)**
Post	0.024***				
	(3.04)				
Non-public target	0.091***	0.073***			
	(10.31)	(7.94)			
Private target			0.096***		
			(8.64)		
Subsidiary target			0.057***		
			(6.26)		
Ln(Deal value)		-0.005**	-0.003	-0.005**	-0.007**
		(-2.56)	(-1.45)	(-2.36)	(-2.22)
Cross border		0.036***	0.034***	0.035***	0.047***
		(3.49)	(3.40)	(3.24)	(3.07)
Cross industry		-0.001	-0.002	-0.002	0.008
		(-0.11)	(-0.20)	(-0.22)	(0.64)
Ownership (%)		0.001***	0.001***	0.001***	0.001***
		(2.97)	(2.77)	(2.90)	(3.18)
Tar. industry volatility		0.027**	0.028**	0.033**	0.033**
		(2.02)	(2.08)	(2.08)	(2.09)
Tar. industry Q		0.041***	0.039***	0.039**	0.049***
		(2.72)	(2.62)	(2.47)	(2.87)
Acq. acquisition experience		-0.000**	-0.000*	-0.000*	-0.000**
		(-2.00)	(-1.88)	(-1.82)	(-2.52)
Industry fixed effect	No	Yes	Yes	Yes	Yes
Year fixed effect	No	Yes	Yes	Yes	Yes
Adj-R^2	0.06	0.08	0.08	0.07	0.08
N	7104	7104	7104	6414	4013

Panel B. Robustness analysis with additional macro-level controls and different industry classifications

	Dependent variable: Earnout (0/1)					
	(1)	(2)	(3)	(4)	(5)	(6)
	Non-public targets	Non-public targets	Non-public targets	Non-public targets	Non-public targets	Non-public targets
Public acquirer	0.046***	0.049***	0.048***	0.052***	0.054***	0.057***
	(5.33)	(5.64)	(5.73)	(6.28)	(6.02)	(6.35)
Public acquirer* × *Post	**0.082*** **	**0.074*** **	**0.083*** **	**0.073*** **	**0.083*** **	**0.076*** **
	(5.11)	**(4.41)**	**(5.07)**	**(4.37)**	**(4.51)**	**(4.02)**
Ln(Deal value)	-0.001	0.003	-0.002	0.001	-0.005**	-0.002
	(-0.44)	(1.12)	(-1.05)	(0.45)	(-2.22)	(-0.59)
Cross border	0.023**	0.019*	0.027**	0.021*	0.033***	0.025**
	(2.09)	(1.73)	(2.28)	(1.94)	(3.10)	(1.99)
Cross industry	-0.008	0.000	-0.001	0.002	-0.002	-0.006
	(-0.96)	(0.05)	(-0.18)	(0.27)	(-0.27)	(-0.67)
Ownership (%)	0.001***	0.000	0.001***	0.000	0.001***	0.000
	(3.15)	(1.42)	(3.13)	(1.35)	(3.20)	(1.37)
Tar. industry volatility	0.025	0.015	0.021	0.010	0.008	-0.006
	(1.33)	(0.72)	(1.10)	(0.49)	(0.40)	(-0.27)
Tar. industry Q	0.049*	0.049*	0.052**	0.038	0.004	-0.002
	(1.89)	(1.83)	(1.97)	(1.44)	(0.16)	(-0.06)
Acq. acquisition experience	-0.000	-0.000	-0.000*	-0.000	-0.000**	-0.000
	(-1.53)	(-0.90)	(-1.77)	(-0.92)	(-2.05)	(-0.77)
Economic policy uncertainty	-0.002	0.019	-0.001	0.022	0.006	0.028
	(-0.09)	(0.60)	(-0.02)	(0.66)	(0.20)	(0.74)
RBA spread	0.023	0.005	0.010	-0.003	0.005	-0.006
	(0.50)	(0.13)	(0.22)	(-0.08)	(0.11)	(-0.15)
Ind M&A activity	0.031**	0.020	0.023**	0.010	0.025	0.010
	(2.08)	(1.30)	(2.34)	(0.95)	(1.65)	(0.60)
Fixed effects	SIC 2-digit, Year	SIC 2-digit, Year	FF-48, Year	FF-48, Year	GICS, Year	GICS, Year
All interactions	No	Yes	No	Yes	No	Yes
Adj-R^2	0.09	0.09	0.08	0.09	0.07	0.08
N	6414	6414	6414	6414	6414	6414

Panel C. Robustness analysis using matched samples

	Dependent variable: Earnout (0/1)		
	(1) Nearest neighbor PSM	(2) Kernel PSM	(3) Entropy balancing
Public acquirer	0.036***	0.050***	0.047***
	(3.02)	(5.28)	(4.32)
Public acquirer* × *Post	**0.094*** **	**0.076*** **	**0.079*** **
	(4.94)	**(4.27)**	**(3.99)**
Ln(Deal value)	-0.002	0.000	0.001
	(-0.64)	(0.16)	(0.61)
Cross border	0.025*	0.020**	0.021*
	(1.84)	(2.03)	(1.84)
Cross industry	-0.014	-0.006	-0.010
	(-1.26)	(-0.82)	(-1.21)
Ownership (%)	0.001***	0.001***	0.001***
	(2.84)	(3.52)	(3.56)
Tar. industry volatility	0.042*	0.022	0.025
	(1.77)	(1.20)	(1.24)
Tar. industry Q	0.048	0.070***	0.069***
	(1.52)	(2.69)	(2.64)
Acq. acquisition experience	-0.000	-0.001	-0.000
	(-0.15)	(-0.85)	(-1.04)
Fixed effects	SIC 2-digit, Year	SIC 2-digit, Year	SIC 2-digit, Year
Adj-R^2	0.08	0.08	0.08
N	4575	6409	6412

Panel D. Alternative specifications with firm fixed effects

Dependent variable: Earnout (0/1)		
	(1)	(2)
Public acquirer × Post	**0.073****	**0.077****
	(2.41)	**(2.13)**
Ln(Deal value)	0.010***	0.013***
	(2.60)	(2.93)
Cross border	0.008	0.014
	(0.52)	(0.87)
Cross industry	0.013	0.002
	(1.03)	(0.12)
Ownership (%)	0.001**	0.000
	(1.99)	(0.60)
Tar. industry volatility	-0.002	-0.008
	(-0.05)	(-0.15)
Tar. industry Q	0.004	0.013
	(0.17)	(0.48)
Acq. acquisition experience	-0.000	-0.000
	(-0.19)	(-0.43)
Fixed effects	Firm, Year	Firm, Year
All interactions	No	Yes
Cluster	Firm	Firm
Adj-R^2	0.24	0.24
N	3966	3966

Panel E. Falsification test using the UK sample

Dependent variable: Earnout (0/1)		
	(1)	(2)
Public acquirer × Post	-0.021	-0.024
	(-1.25)	(-1.43)
Controls	Yes	Yes
Fixed effects	SIC 2-digit, Year	SIC 2-digit, Year
All interactions	No	Yes
Adj-R^2	0.13	0.14
N	14,139	14,139

Table 3. Descriptive statistics

This table reports the distribution of completed acquisitions and acquisitions with earnouts by Australian public firms between 2001 and 2017. Panel A presents a sample distribution by calendar year. Panel B presents a sample distribution by acquirer and target industry (GICS sector).

Panel A. Earnout use by year

Year	All acquisitions		Acquisitions with earnouts		Earnouts/all acquisitions
	N	%	N	%	%
2001	175	4.5	15	3.0	8.6
2002	133	3.4	8	1.6	6.0
2003	181	4.6	15	3.0	8.3
2004	235	6.0	21	4.3	8.9
2005	289	7.4	29	5.9	10.0
2006	358	9.2	25	5.1	7.0
2007	443	11.3	23	4.7	5.2
2008	220	5.6	23	4.7	10.5
2009	192	4.9	23	4.7	12.0
2010	228	5.8	28	5.7	12.3
2011	197	5.0	28	5.7	14.2
2012	185	4.7	40	8.1	21.6
2013	168	4.3	23	4.7	13.7
2014	233	6.0	57	11.6	24.5
2015	214	5.5	47	9.5	22.0
2016	220	5.6	33	6.7	15.0
2017	238	6.1	55	11.2	23.1
Total	3909	100.0	493	100.0	12.6

Panel B. Earnout use by industry (GICS)

	Total acquisitions	Earnouts	Earnouts/all acquisitions
Acquirer GICS	N	N	%
Energy	241	27	11.2
Materials	777	83	10.7
Industrials	641	103	16.1
Consumer Discretionary	480	69	14.4
Consumer Staple	154	13	8.4
Health Care	262	49	18.7
Financials	867	46	5.3
Information Technology	325	81	24.9
Telecommunications	121	18	14.9
Utilities	41	4	9.8
Total	3909	493	12.6
	Total acquisitions	Earnouts	Earnouts/all acquisitions
Target GICS	N	N	%
Energy	229	19	8.3
Materials	763	73	9.6
Industrials	576	92	16.0
Consumer Discretionary	656	94	14.3
Consumer Staple	260	28	10.8
Health Care	259	40	15.4
Financials	721	49	6.8
Information Technology	273	80	29.3
Telecommunications	111	13	11.7
Utilities	61	5	8.2
Total	3909	493	12.6

Table 4. Sample characteristics of acquisitions by public acquirers

This table reports descriptive statistics for a sample of completed acquisitions with and without earnouts by Australian public firms between 2001 and 2017. Panel A reports mean characteristics of earnout deals and acquisitions without earnouts. The mean difference between transactions with and without earnouts is reported in column (3) using a two-sample *t*-test with corresponding *t*-statistics in parentheses. Panel B reports mean characteristics of earnout acquisitions before and after the enactment of IFRS 3 (2008). Differences in means before and after IFRS 3 (2008) are reported in column (3) using a two-sample *t*-test with corresponding *t*-statistics in parentheses. See Appendix 1 for variable definitions. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Full sample

	(1) Acquisitions with earnouts (N = 493)	(2) Acquisitions without earnouts (N = 3,416)	(3) Difference (1) – (2) *t*-stat.
Non-public target (0/1)	0.99	0.87	0.12***
			(16.90)
Deal value ($m)	41.36	145.69	-104.32***
			(-7.76)
Acq market cap. ($m)	985.07	2505.13	-1520.06***
			(-6.33)
Relative size	0.24	0.19	0.05***
			(4.01)
Cross border (0/1)	0.34	0.25	0.09***
			(3.85)
Cross industry (0/1)	0.43	0.48	-0.05**
			(-2.16)
Ownership (%)	98.18	96.60	1.58***
			(3.65)
Tar industry volatility	0.33	0.32	0.01
			(0.87)
Tar industry Q	1.45	1.36	0.09***
			(4.28)
Acq CFO	-0.85	-0.21	-0.65
			(-0.94)
Acq leverage	0.98	2.57	-1.59*
			(-1.85)
Acq proceeds from issues	1.11	2.67	-1.55***
			(-4.94)
Acq. acquisition experience	3.47	3.50	-0.03
			(-0.16)
Big4 (0/1)	0.54	0.62	-0.08***
			(-3.22)
IFRS3 (2008)	0.63	0.40	0.23***
			(9.83)
Economic policy uncertainty	4.57	4.42	0.15***
			(7.19)
RBA spread	3.14	2.86	0.28***
			(9.55)
Ind. M&A activity	2.83	2.80	0.03
			(0.56)

Panel B. Earnouts

	(1) Post IFRS3 (2008) (N = 311)	(2) Pre IFRS3 (2008) (N = 182)	(3) Difference (1) – (2) t-stat.
Non-public target (0/1)	1.00	0.98	0.02 (1.40)
Deal value ($m)	34.11	64.09	-29.98** (-2.11)
Acq market cap. ($m)	631.11	1899.80	-1268.68** (-2.14)
Relative size	0.26	0.23	0.03 (1.36)
Earnout size	0.39	0.31	0.07*** (2.94)
Cross border (0/1)	0.34	0.36	-0.02 (-0.38)
Cross industry (0/1)	0.40	0.48	-0.08 (-1.56)
Ownership (%)	98.72	97.24	1.48 (1.51)
Tar industry volatility	0.31	0.37	-0.06*** (-4.66)
Tar industry Q	1.45	1.46	-0.02 (-0.36)
Acq CFO	-1.58	-0.02	-1.56 (-1.06)
Acq leverage	1.01	1.40	-0.39 (-1.11)
Acq proceeds from issues	0.92	1.39	-0.46 (-1.33)
Acq. acquisition experience	4.09	3.90	0.19 (0.38)
Big4	0.58	0.74	-0.17*** (-3.40)
Economic policy uncertainty	4.76	4.28	0.48*** (11.54)
RBA spread	3.54	2.45	1.09*** (30.83)
Ind. M&A activity	2.69	2.79	-0.09 (-0.88)

Table 5. Determinants of earnout use and earnout size among public acquirers

This table reports determinants of earnout use and earnout size among public acquirers. Panel A reports results from OLS regressions of earnout use. The dependent variable, *Earnout*, is an indicator variable that equals 1 if an acquisition is labelled as an earnout deal, and 0 otherwise. *Post* is an indicator variable that equals 1 if the acquisition is completed after the revised IFRS 3 (2008) took effect, and 0 otherwise. In columns (1) and (2), the test sample is the full sample of completed acquisitions by Australian listed firms between 2001 and 2017. In columns (3) and (4), the test sample includes only non-public targets. Panel B reports results from regressions of earnout size, measured as the ratio of earnout payment to transaction value in completed earnout transactions between 2001 and 2017. Column (1) reports results from a Tobit regression. Columns (3) and (4) include the inverse mills ratio from a Heckman sample selection model in column (2). See Appendix 1 for variable definitions. *t*-statistics are reported in parentheses. The coefficients of primary interest are highlighted in bold. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. IFRS 3 (2008) and earnout use by public acquirers

	Dependent variable: Earnout (0/1)			
	(1) Full sample	(2) Full sample	(3) Non-public targets	(4) Non-public targets
Post	**0.087*****	**0.089*****	**0.099*****	**0.066****
	(5.52)	**(5.60)**	**(5.35)**	**(2.29)**
Non-public target	0.099***	0.109***		
	(9.28)	(9.82)		
Ln(Deal value)	0.009*			
	(1.90)			
Acq market cap.	-0.017***			
	(-5.82)			
Relative size		0.106***	0.108***	0.108***
		(5.13)	(4.25)	(4.20)
Cross border	0.045***	0.038***	0.038**	0.037**
	(3.26)	(2.82)	(2.58)	(2.55)
Cross industry	-0.028**	-0.029**	-0.031**	-0.030**
	(-2.05)	(-2.20)	(-2.18)	(-2.19)
Ownership (%)	0.001*	0.001*	0.001*	0.001*
	(1.89)	(1.98)	(1.95)	(1.89)
Tar industry volatility	0.001*	0.001*	0.001*	0.001*
	(1.89)	(1.98)	(1.95)	(1.89)
Tar industry Q	-0.030	-0.023	-0.024	-0.050
	(-0.97)	(-0.82)	(-0.73)	(-1.59)
Big4			-0.005	-0.006
			(-0.28)	(-0.32)
Acq leverage			-0.000***	-0.000***
			(-10.58)	(-9.93)
Acq CFO			-0.000	-0.000
			(-1.05)	(-1.07)
Acq proceeds from issues			-0.000***	-0.000***
			(-3.70)	(-3.61)
Acq acquisition experience			0.001	0.001
			(0.67)	(0.74)
Economic policy uncertainty				0.033
				(1.63)
RBA spread				0.012
				(0.44)
Ind M&A activity				0.008
				(0.50)
Industry fixed effect	Yes	Yes	Yes	Yes
Adj-R^2	0.09	0.09	0.08	0.08
N	3907	3907	3413	3413

Panel B. IFRS 3 (2008) and earnout size

	Dependent variable: Earnout size			
	(1) Tobit	(2) Selection equation	(3) Heckman two-step correction	(4) Heckman two-step correction
Post	**0.049****		**0.055****	**0.053****
	(2.40)		**(2.16)**	**(2.09)**
Acq market cap.		-0.097***		
		(-6.30)		
Non-public target	0.042	1.231***		
	(0.45)	(6.25)		
Relative size	0.064	0.083***		
	(1.27)	(3.54)		
Cross border	-0.018		-0.010	-0.017
	(-0.80)		(-0.45)	(-0.74)
Cross industry	0.070**		0.068***	0.073***
	(2.28)		(2.70)	(2.90)
Ownership (%)	-0.003**		-0.004***	-0.003**
	(-1.97)		(-2.74)	(-2.45)
Target industry volatility	0.154*		0.132	0.123
	(1.88)		(1.25)	(1.15)
Target industry Q	0.039**		0.039	0.046
	(2.25)		(1.32)	(1.53)
Big4	-0.002			0.006
	(-0.07)			(0.22)
Acq leverage	-0.000*			-0.000**
	(-1.85)			(-2.28)
Acq CFO	0.000			-0.000
	(0.41)			(-0.00)
Acq proceeds from issues	0.004			0.004
	(1.07)			(1.50)
Inverse Mills Ratio			-0.050*	-0.018*
			(-1.75)	(-1.91)
Industry fixed effect	Yes	Yes	Yes	Yes
Pseudo-R^2	0.45	0.08	0.08	0.08
N	449	3858	449	449

Table 6. Summary statistics of earnout fair value subsamples

This table reports summary statistics of the earnout fair value subsamples. Panel A lists the sampling procedure of earnouts under IFRS 3 (2008) for testing the initial fair value estimates. Panel B reports summary statistics of initial fair value estimates of earnout liabilities and subsequent payments/adjustments over the earnout period. Panel C reports mean and median total operating profits, size of fair value gains (losses), and goodwill impairment losses relative to contemporaneous operating profits over the earnout period, segmented by whether earnout liabilities are overstated. Columns (3) and (4) report *t*-statistics and *z*-statistics from a two-sample *t*-test of means and a Wilcoxon rank-sum test of medians, respectively. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Panel A. Earnout fair value disclosure sample following the IFRS 3 (2008)

Sample	N
Earnouts after IFRS 3 (2008)	311
Less: accounted for as reverse acquisitions	23
accounted for as asset acquisitions	32
no disclosure or aggregated disclosure of earnouts	53
expensed earnouts (e.g., employment cost)	6
Earnouts with the initial fair value estimation available	197
Less: equity-classified earnouts	17
acquired target is disposed or the acquirer is delisted during the earnout period	20
Liability-classified earnouts with subsequent disclosure available	160

Panel B. Summary statistics of earnout fair value and adjustment subsamples

Earnout liability sample:	count	mean	p10	median	p90	sd
Earnout initial FV/ Earnout max	160	0.79	0.35	0.99	1.00	0.29
Earnout payment/ Earnout max	160	0.53	0.00	0.42	1.03	0.64
Overstatement	160	0.47	-0.03	0.58	1.00	0.64
Overstate_dummy (0/1)	160	0.62	0.00	1.00	1.00	0.49
Overstatement | Overstate_dummy=1	108	0.86	0.39	1.00	1.00	0.29

Panel C. The impact of fair value gain/loss on reported net income during the earnout period

	(1) Overstate (Fair value gain) N =108		(2) Not overstate (No fair value gain) N = 52		(3) *t*-test in sample means	(4) Wilcoxon rank-sum test
	Mean	Median	Mean	Median	*t*-stat	*z*-stat
Net income	61.58	-0.40	52.63	28.48	0.17	-3.80***
Fair value gain(loss) from changes in earnout liabilities/Net income	0.56	0.04	0.10	0.00	2.08**	2.05**
Goodwill impairment expense/Net income	0.10	0.00	0.00	0.00	3.04***	2.30**
Net income excluding fair value gains /Acquirer total asset before acquisition	-2.52	-0.08	0.27	0.37	-2.76***	-5.66***

Table 7. Overstatement of initial earnout liabilities

This table reports regression results on determinants of earnout overstatement using the subsample of liability-classified earnouts under IFRS 3 (2008). The dependent variable *Overstatement (%)* is measured as the difference between the initial fair value estimate of earnout liability and actual earnout payments, scaled by the initial estimate. See Appendix 1 for variable definitions. *t*-statistics are reported in parentheses. Standard errors are clustered by industry and year. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1)	(2)	(3)
Dependent Var.:	Overstatement (%)	Overstatement (%)	Overstatement (%)
Ln(Deal value)	-16.465***	-16.122***	-16.187***
	(-3.30)	(-3.42)	(-3.23)
Acq market cap.	8.133*	7.688*	7.668*
	(1.97)	(1.77)	(1.80)
Cross border	22.396*	22.143*	21.798*
	(1.72)	(1.90)	(1.96)
Cross industry	-7.892	-7.613	-6.796
	(-0.39)	(-0.39)	(-0.34)
Acq leverage	0.022*	0.022*	0.022*
	(1.87)	(1.81)	(1.87)
Acq CFO	0.289***	0.287***	0.265**
	(2.88)	(2.76)	(2.32)
Acq ROA	-0.074***	-0.075***	-0.069**
	(-2.69)	(-2.70)	(-2.23)
Big4	-30.975**	-29.740**	-27.664*
	(-2.28)	(-2.02)	(-1.89)
Initial cash pay		0.015	0.016
		(0.12)	(0.13)
Tar industry volatility		7.622	1.323
		(0.18)	(0.03)
Tar industry Q		4.386	4.633
		(0.33)	(0.35)
Economic policy uncertainty			31.170
			(0.73)
RBA spread			-74.254
			(-1.27)
Ind M&A activity			4.605
			(0.18)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Adj-R^2	0.10	0.08	0.06
N	160	160	160

Table 8. Goodwill impairment in earnout transactions under IFRS 3 (2008)
This table tests the association between overstated earnout liabilities and goodwill impairment. The dependent variable in column (1) is an indicator variable, *Impairment*, which equals 1 if goodwill arising from an earnout transaction is impaired during the earnout period. The dependent variable in column (2) is *Impairment loss*, which is calculated as the absolute amount of impairment losses recognized during the earnout period, divided by transaction value. *Reversal* is a categorical variable, which takes the value of 1 if the overstated earnout liability is partially reversed (or earnout is partially paid), 2 if the overstated earnout liability is fully reversed (no earnout is paid), and 0 if there is no reversal of initially recognized earnout liability, over the earnout period. See Appendix 1 for variable definitions. Variables are defined in Appendix 1. Industry and year fixed effects are included. Standard errors are clustered by industry and year. *t* -statistics are reported in parentheses. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) Impairment (0/1)	(2) Impairment loss (Impairment loss/Deal value)
1. Partial reversal	**0.270***	**0.068**
	(1.96)	**(0.84)**
2. Full reversal	**-0.171****	**-0.083****
	(-2.51)	**(-2.29)**
Cross border	-0.092	-0.003
	(-0.96)	(-0.05)
Cross industry	-0.192**	-0.074
	(-2.04)	(-1.57)
Earnout size	0.060	0.149
	(0.24)	(0.76)
CAR	-0.104**	-0.033
	(-2.19)	(-1.37)
Big4	-0.003	0.022
	(-0.02)	(0.32)
Goodwill/Deal value	-0.135	-0.107*
	(-1.24)	(-1.72)
Acq. ROA	0.000	-0.000
	(0.02)	(-0.64)
Acq. market-to-book	0.001**	0.000*
	(2.09)	(1.72)
Acq. leverage	-0.000**	0.000
	(-2.02)	(0.66)
Fixed effects	Industry, Year	Industry, Year
Adj-R^2	0.47	0.56
N	128	128
Number of *Imp* = 1	15	15

Table 9. Overstated earnout liabilities and acquirers' acquisition announcement abnormal return
This table reports results from OLS regressions of acquirers' announcement cumulative abnormal return (CAR) on overstatement of earnout liabilities. The dependent variable is acquirers' market-adjusted 5-day CAR, centered on the acquisition announcement date. The benchmark market return is the value-weighted return of all ASX-listed stocks. In column (1), *Overstatement* is measured as the difference between the initial estimate of earnout liabilities and actual payments during the earnout period, divided by the initial estimate. In columns (2) and (3), *Overstatement* is replaced with *Reversal*, which is a categorical variable taking the value of 0 if there is no reversal of initially recognized earnout liability over the earnout period, 1 if the overstated earnout liability is partially reversed (or earnout is partially paid) over the earnout period, and 2 if the overstated earnout liability is fully reversed (no earnout is paid) over the earnout period. See Appendix A for definitions of variables. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	Dependent variable: Acquirers' announcement CAR		
	(1)	(2)	(3)
Overstatement	**-3.526***		
	(-1.85)		
1. Partial reversal		**-8.522*****	**-10.125*****
		(-2.68)	**(-2.99)**
2. Full reversal		**-5.792***	**-6.127***
		(-1.80)	**(-1.91)**
Earnout size/market cap.	9.828**	9.671**	8.965**
	(2.46)	(2.62)	(2.49)
Acq market cap	-0.364	-0.724	-0.916
	(-0.39)	(-0.74)	(-0.99)
Cross border	0.604	0.870	1.333
	(0.20)	(0.31)	(0.47)
Cross industry	-6.630**	-5.838**	-5.730**
	(-2.49)	(-2.26)	(-2.21)
Acq leverage	0.004	0.003	0.003
	(0.51)	(0.42)	(0.31)
Acq CFO	-0.060	-0.065	-0.057
	(-1.12)	(-1.26)	(-1.15)
Acq ROA	0.018	0.023	0.021
	(1.29)	(1.64)	(1.62)
Big4	2.251	2.656	3.061
	(0.78)	(0.94)	(1.05)
Initial cash pay	1.300	0.970	1.299
	(0.39)	(0.30)	(0.42)
Economic policy uncertainty			-10.094
			(-0.81)
RBA spread			-22.227
			(-1.02)
Ind M&A activity			-5.078
			(-1.07)
Industry fixed effect	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes
Adj-R^2	0.31	0.33	0.34
N	140	140	140

Table 10. Value relevance of goodwill in earnout transactions

This table reports results from OLS regressions of acquirers' post-deal stock prices on reported values of net assets in the acquisition year. The dependent variable *Price* is acquiring firms' stock price three months after the acquisition fiscal year-end date. *BVE_net* is defined as the book value of equity at the end of the acquisition fiscal year net of the acquisition value. *FV net assets* represents fair value estimates of acquired net assets, which is calculated as total transaction value minus goodwill. *Goodwill* is the initial allocation of purchase price to goodwill. Variables are as defined in Appendix A. All explanatory variables are deflated by the number of outstanding shares. *t*-statistics are in parentheses and based on standard errors adjusted for heteroskedasticity. *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

	(1) Price	(2) Price
BVE_net	1.867***	1.765***
	(18.78)	(4.25)
FV net assets	3.835***	3.397**
	(3.87)	(2.12)
Goodwill	5.192***	8.981***
	(3.49)	(2.88)
BVE_net × *Overstate_dummy*		0.136
		(0.32)
FV net assets × *Overstate_dummy*		-1.360
		(-0.63)
Goodwill × *Overstate_dummy*		-6.678***
		(-2.83)
Overstate_dummy		0.685
		(1.36)
Adj-R^2	0.77	0.79
N	159	159

Appendices

Appendix 1. Variable Definitions

Variable	Definition	Source
Earnout (0/1)	An indicator variable equals 1 if the consideration offered is labelled in SDC as earnout, and 0 otherwise.	SDC
Earnout size	Earnout amount scaled by deal value.	SDC
Public acquirer	An indicator variable equals 1 if the acquirer in an acquisition is public, and 0 otherwise.	SDC
Post-IFRS 3 (2008)	An indicator variable equals 1 if an acquisition is completed after the effective date of IFRS 3 (2008), and 0 otherwise.	
Non-public target	An indicator variable equals 1 if the target in an acquisition is non-public, and 0 otherwise.	SDC
Ln(Deal value)	Natural logarithm of the transaction value (including the maximum amount of earnout).	SDC
Acq market cap.	Natural logarithm of acquirer's market value of equity before the deal announcement.	SPPR
Relative size	Total transaction value divided by the sum of acquirer's market value of equity and total transaction value).	SDC/SPPR
Cross border	An indicator variable equals 1 if the target is in a country different to the acquirer's country, and 0 otherwise.	SDC
Cross industry	An indicator variable equals 1 if the acquirer's two-digit SIC industry code and the target's primary two-digit SIC code are different, and 0 otherwise.	SDC
Ownership (%)	Ownership of the acquiring firm in the target firm after completion of the acquisition.	SDC
Tar industry volatility	Annualized volatility of the value-weighted return of the target's industry, measured over the last 100 days prior to the acquisition announcement.	SIRCA
Tar industry Q	Median value of Q for listed firms in the same industry as the target firm in the fiscal year before the deal announcement. Q is the ratio of market value of a firm to the book value of its total assets, where firm market value is measured as book value of total assets less book value of equity plus market value of equity.	Aspect Financial
Acq leverage	Total liability divided by book value of equity.	Aspect Financial
Acq CFO	Operating cash flow divided by total asset.	Aspect Financial
Acq ROA	Operating net profits divided by total asset.	Aspect Financial
Acq proceeds from issues	Cash proceeds from issuance of equity in the year before deal announcement divided by deal value.	Aspect Financial
Acq acquisition experience	Number of acquisitions by the same acquirer recorded in SDC from 1 January 2007 to the acquisition announcement date.	SDC
Acq market-to-book	Equity market value divided by book value of total equity.	Aspect Financial and SIRCA
Big 4	An indicator variable equals 1 if the auditor of the acquirer in the acquisition year is a Big-4 auditor, and 0 otherwise.	Connect4

Overstatement	Initial earnout liability minus actual earnout payment, scaled by initial earnout liability.	Hand collection
Overstate_dummy (0/1)	An indicator variable equals 1 if the initial earnout liability is larger than the actual earnout payment, and 0 otherwise.	Hand collection
Reversal (0, 1, 2)	A categorical variable takes the value of 1 if the initially estimated earnout liability is partially reversed, 2 if the initially estimated earnout liability is fully reversed, and 0 if there is no reversal of the initially recognized earnout liability.	Hand collection
Initial cash pay	An indicator variable equals 1 if the upfront payment is in cash, and 0 otherwise.	SDC
Impairment (0/1)	An indicator variable equals 1 if the goodwill arising from the earnout transaction is impaired during the earnout period, and 0 otherwise.	Hand collection
Impairment loss	The absolute amount of impairment losses recognized during the earnout period, scaled by transaction value.	Hand collection
Goodwill/Deal value	Allocation of purchase price to goodwill, scaled by deal value at the transaction date.	Hand collection
CAR [-2,2]	Acquirer's 5-day market-adjusted abnormal return centered on the acquisition announcement date.	SIRCA
Price	Acquiring firm's stock price three months after the acquisition fiscal year-end date.	SIRCA
BVE_net	Book value of equity at the end of the acquisition fiscal year, net of the acquisition value, and earnout liability.	Aspect Financial
FV net assets	Fair value estimates of acquired net assets, calculated as the transaction value minus goodwill recognized at the transaction date.	Hand collection
Economic policy uncertainty	Natural logarithm of the average Australian economic policy uncertainty index over the 12-month period before the acquisition announcement date.	https://www.policyuncertainty.com/
RBA spread	Average difference between the Reserve Bank of Australia's lending rate and the three-year government bond rate over the 12-month period before the acquisition announcement date.	Reserve Bank of Australia
Industry M&A activity	Natural logarithm of one plus the number of acquisitions recorded in SDC in the target's industry during the concurrent calendar year.	SDC

Appendix 2. Examples of earnout agreements, earnout accounting treatment and disclosures

Appendix 2.1. Earnout terms in acquisitions

1. APN acquisition announcement on 21 June 2012.

MARKET ANNOUNCEMENT

APN MAKES MAJOR STRATEGIC DIGITAL ACQUISITION

Sydney, 21 June 2012 – APN News & Media Limited [ASX, NZX: APN] today announced it has acquired a majority stake in one of Australia's leading eCommerce businesses. brandsExclusive, an online shopping club which partners directly with premium brands to offer exclusive sales to members with heavy discounts off recommended retail prices.

Under the terms of the transaction APN has taken an 82% equity stake for an up-front investment of $36m. An additional payment of up to $30m is contingent on achieving earnings targets for 2013. Taking into account the additional payment, the total investment will represent a 7-8x 2013 EBITDA multiple.

2. PGC acquisition announcement on 8 July 2016

The acquisition consideration will be as follows:

- $2 million (less minimum working capital adjustments) via the issuing of fully paid ordinary shares in PGC, with appropriate escrow arrangements. The issue price for the calculation of the fully paid shares will be $0.703, which is the 5-day volume weighted average of the PGC share price to the 6 July 2016.
- An earn-out of 4 times MIDAS profit before tax (including R&D expenses) will apply for the incremental growth from FY16 to FY18.

Appendix 2.2 A hypothetical example of the accounting for a liability-classified earnout

Assume the following:

Year 0
Company A acquires Company T with an upfront cash consideration of $7M and earnout payments $3M payable in cash in one year based on target achieving EBITDA hurdles. Fair value of the identifiable net assets of the target is $6M. Fair value of the earnout at the acquisition date is $3M.

Dr : Net assets	$6m		
Goodwill	$4m		
Cr: Cash		$7m	
Earnout liability		$3m	

No change in the earnout fair value at the end of year 0.

Year 1

(1) If the acquirer Company A pays the $3m earnout, then there is no income statement effect.

Dr: Earnout liability	$3m	
Cr: Cash		$3m

(2) If the target does not achieve the performance hurdle, then acquirer A would pay $0 and fully reverse the initially estimated earnout liability.

Dr: Earnout liability	$3m	
Cr: Fair value gain		$3m

(3) If the earnout is paid pro rata and acquirer A pays $1m earnout, then the acquirer reverses $2m of the initially estimated earnout liability.

Dr: Earnout liability	$3m	
Cr: Fair value gain		$2m
Cash		$1m

(4) If the target outperforms the pre-determined hurdles and the earnout is uncapped (paid pro rata), then acquirer A pays $5m.

Dr: Earnout liability	$3m	
Fair value loss	$2m	
Cr: Cash		$5m

Appendix 2.3 An example of earnout fair value disclosure

28. Business combination

On 3 January 2017 HUB24 Limited acquired 100% of the issued shares in Agility, a specialist provider of application, data exchange and technology products and services to the financial services industry, for consideration of up to $15 million in cash and shares, (fair value $14,188,209).

Details of the purchase consideration, the net assets acquired and goodwill are as follows:

Purchase consideration	Total $
Cash paid – at completion	2,793,335
Shares issued – at completion	3,807,766
Deferred consideration	1,876,113
Contingent consideration – 1st performance period (31 December 2018)	2,938,667
Contingent consideration – 2nd performance period (31 December 2019)	2,772,328
Total purchase consideration	**14,188,209**

Deferred consideration refers to cash payments of up to $2 million to be paid on 3 January 2018 subject to performance conditions and warranty claims.

Contingent consideration refers to capped earnout consideration of up to $3.5 million in cash and $3.5 million in HUB24 ordinary shares subject to certain conditions and performance hurdles to be met progressively over the next two and a half years.

The provisional fair values of the acquisition are as follows:

	Fair value $
Cash and cash equivalents	1,538,755
Plant and equipment	612,215
Working capital	(910,451)
Deferred tax liability	(385,200)
Customer relationships	1,284,000
Connect software	2,564,000
Net identifiable assets acquired	**4,703,319**
Add: goodwill	9,484,890
	14,188,209

14. Non-current liabilities – other

	CONSOLIDATED	
	2017 $	2016 $
Contingent consideration – Agility	5,710,995	-
Contingent consideration – Paragem	-	4,246,287
Unwind of discount on deferred consideration – Agility	261,612	-
Deferred revenue from research and development claim	853,769	942,666
	6,826,376	**5,188,953**

CONTINGENT CONSIDERATION – PARAGEM

Contingent consideration – Paragem has been reclassified from a non-current liability at 30 June 2016 to a current liability as at 30 June 2017, as the consideration is due on 30 September 2017.

CONTINGENT CONSIDERATION – AGILITY

Refer to note 28 for further details.

CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

FOR THE YEAR ENDED 30 JUNE 2018

	Notes	Consolidated 2018 $	Consolidated 2017 $
Revenue from continuing operations			
Revenue	6	84,050,509	62,340,841
Fair value gain on contingent consideration	11	2,383,850	925,407
Interest and other income		560,475	503,011
		86,994,834	63,769,259

CONSOLIDATED STATEMENT OF PROFIT OR LOSS AND OTHER COMPREHENSIVE INCOME

FOR THE YEAR ENDED 30 JUNE 2019

	Notes	Consolidated 2019 $	Consolidated 2018 $
Revenue from continuing operations			
Revenue	6	96,358,115	83,997,822
Fair value gain on contingent consideration	15	1,145,336	2,383,850
Interest and other income		1,164,132	613,162
		98,667,583	86,994,834
Expenses			

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