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Dimitris Andriosopoulos[1] · **Leonidas G. Barbopoulos**[2]

Abstract We examine whether the relative equity market valuation conditions (EMVCs) in the countries of merging firms help acquirers' managers to time the announcements of both domestic and foreign targets. After controlling for several deal- and merging firm-specific features we find that the number of acquisitions and acquirers' gains are higher during periods of high-EMVCs at home, irrespective of the domicile of the target. We also find that the higher gains of foreign target acquisitions realized during periods of high-EMVCs at home stem from acquiring targets based in the RoW (=World-G7), rather than the G6 (=G7-UK) group of countries. We argue that this is due to the low correlation of EMVCs between the UK (home) and the RoW group of countries. However, these gains disappear or even reverse during the post-announcement period. Moreover, acquisitions of targets domiciled in the RoW (G6) countries yield higher (lower) gains than acquisitions of domestic targets during periods of high-EMVCs at home. This suggests that the relative EMVCs between the merging firms' countries allow acquirers' managers to time the market and acquire targets at a discount, particularly in countries in which acquirers' stocks are likely to be more overvalued than the targets' stocks.

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"The concerns of boardrooms have generally shifted away from macro issues to valuation when it comes to a deal" June 2015, *Wilhelm Schulz, Head of Europe, Middle East and Africa M&A at Citigroup.*

1 Introduction

Record valuations in 2015 point to a new record of Mergers and Acquisitions (M&As) boom with the expectation of M&As continuing for at least another year due to favorable economic conditions (Fontanella-Khan et al. 2015). Favorable market and economic conditions lead to firms financing a large proportion of their financing deficit with net external equity, particularly when the cost of equity is low (Huang and Ritter 2009). An extant literature has emerged over the last few decades investigating the effect of M&As on firm value (i.e. acquirer abnormal returns) by analysing several wider market conditions at the time the investment is initiated, financed, and implemented. Some of the earlier studies focus on the valuation effects of factors pertinent to deal and merger partners,[1] while others analyze the implications of equity market valuation conditions (EMVCs).[2]

   To this date, there are still considerable gaps in our understanding of the determinants of merger value creation, and in particular of the impact of EMVCs on the wealth of shareholders of firms engaged in domestic M&As versus those engaged in cross-border mergers and acquisitions (CBAs). While foreign target M&As occur for similar reasons as domestic ones, national borders add a number of complexities to the estimation of synergies and premium to foreign target M&As, relative to that of domestic ones. For instance, Doidge et al. (2007) show that firms do not differ significantly in corporate governance levels only after controlling for country characteristics. Moreover, legal frameworks determine corporate valuation (La Porta et al. 2002), market efficiency (Morck et al. 2000) and the magnitude of currency crises (Johnson et al. 2000), among others. As CBAs are associated with additional frictions relative to domestic acquisitions, such as, cultural and geographical differences, political, economic, foreign exchange, taxation, accounting standards, and potentially corporate governance differences (Bris and Cabolis 2008), such frictions can impede or facilitate M&As. The theoretical framework of Shleifer and Vishny (2003) argues that more overvalued acquirers tend to use their shares to acquire less overvalued targets. We further argue that the imperfect integration of capital markets across countries can also motivate foreign target M&As in which an overvalued acquirer purchases a relatively inexpensive target following changes in exchange rates or stock market valuations in the local currency. Therefore, we thoroughly investigate the extent to which EMVCs within the merging firms' countries: (a) play a key role in assisting the acquirers' managers to time the announcement of domestic and foreign target acquisitions and, (b) affect acquirers' value gains both in the short- and long-run.

   Whether this consensus appeals in domestic versus foreign deals, especially when EMVCs of the merging firms are not synchronized, remains an important question to be investigated. We fill this void by empirically examining whether acquirers' managers time the announcement of both domestic and foreign target M&As, as captured by the EMVCs

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[1] These studies are mainly concerned with the sensitivity of acquirers' gains to deal and firm-specific characteristics, such as the relative size of the deal (Asquith et al. 1983), the method of payment (Travlos 1987), the listing status of targets (Draper and Paudyal 2006), the size of the acquirer (Moeller et al. 2004), and the growth opportunities of the acquirer (Sudarsanam and Mahate 2003).

[2] See for example, Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004).

at home relative to that in the host countries. We perform this by focusing exclusively on UK acquirers as they are the most active worldwide in engaging in CBAs.[3]

Existing evidence shows that takeovers of domestic targets cluster over time and several theories attempt to explain this phenomenon, such as the neoclassical theory of mergers, the strategic theory and the behavioral approach, among others.[4] First, the neoclassical theory of merger waves, which is mainly associated with the work of Gort (1969), posits that M&A activities spike with technological, economic and/or regulatory industry shocks. Similarly, in an earlier work Nelson (1959) showed that M&A activities are highly associated with business cycles. Second, the strategic theory of merger waves focuses on the acquisition performance, motives, and strategies (Kusewitt 1985; Toxvaerd 2008). In particular, Toxvaerd (2008) develops a theoretical model predicting that competitive pressure interacts with the irreversibility of mergers in an uncertain environment, and argues that acquirers either postpone a bid in order to gain from more favorable future market conditions, or enter the bidding contest. He argues that while in a complete information model all acquirers rush to bid creating merger waves, in an incomplete information environment various factors representing economic fundamentals, including the benefits from mergers and target scarcity, affect the timing of the merger waves. Third, the behavioral explanation of Shleifer and Vishny (2003), argues that the observed clustering in M&A activity is largely driven by stock market miss-valuations. Similarly, Rau and Stouraitis (2011) argue that the waves of corporate activity are driven by a time-varying influence of both the neoclassical and miss-valuation hypotheses.

Timing the announcement of M&As is an important factor influencing the likelihood of M&A success, since, for example, M&As announced during periods of high investor sentiment are likely to be associated with greater mispricing levels (Stambaugh et al. 2012). This mispricing stems from the stronger impact of market-wide sentiment on stocks that are difficult to value (Baker and Wurgler 2006) and the positive (flat) relationship between sentiment and expected returns during low (high) sentiment periods (Yu and Yuan 2011). The evidence on M&As in the US suggests that the announcement period (short-run) gains and the post-announcement (long-run) performance of acquirers are also sensitive to factors pertinent to stock market conditions at the time of the M&A announcement. For example, Bouwman et al. (2009) show that M&As announced during periods of high-EMVCs lead to higher acquirers abnormal returns in the short-run, but such gains are eliminated in the long-run. Rosen (2006) also confirms the same pattern in the performance of acquirers and argues that the observed superior announcement period gains of acquirers at the time of high-EMVCs are driven by investors' sentiment. However, the aforementioned studies analyse the impact of EMVCs for domestic target M&As and ignore the the impact of relative EMVCs between the merging firms countries in CBAs on the gains of domestic versus foreign acquirers, which remains to be investigated.

Due to the globalization of financial markets and the relaxation of restrictions in capital mobility, CBAs have increased substantially. For example, the World Investment Report (UNCTAD) (2009, p. 11, Table I.3.) shows that in 2007 the total value of global CBA deals reached over \$1,197bn compared to only \$39bn in 1987, which represents a record increase of more than 68 % over the value of 2006 (\$711bn). In the same year, net purchases of UK firms reached 21.5 % of the global market. Consequently, the literature has turned to

investigate the effects of domestic versus CBAs on acquirers' gains.[5] Some of the earlier studies show that the gains of merger partners in CBAs are affected by the strength of the acquirers' domestic currency (Kang 1993). Froot and Stein (1991) predict that when the acquirers' currency is strong against the US dollar they will have an advantage when purchasing US targets. This is empirically confirmed by Harris and Ravenscraft (1991) who study US target firms only and find that a stronger currency—against the US dollar—of foreign acquirers leads to higher wealth effects for US targets at the time of the M&A announcement. di Giovanni (2005) further shows that CBA activities are affected by financial and other institutional factors, with the size of financial markets being one of the most influential factors.

Overall, these findings suggest that M&A activities (domestic and cross-border) are affected by financial and economic conditions in the acquirers' home market. However, little is known about the effect of relative EMVCs on the gains of acquirers targeting domestic versus foreign target firms. We address this issue and identify whether managers of acquiring firms can extract any benefits by timing the market, namely, whether the relative EMVCs in merging firms' countries allow them to time the announcement of both domestic and foreign target M&As.

Our results show that acquirers enjoy higher short-run abnormal returns from deals announced during periods of high-EMVCs at home, regardless of the target being a domestic or a foreign firm, consistent with Bouwman et al. (2009). We further find that foreign target acquirers enjoy greater gains from deals made during high-EMVCs at home only when the EMVCs between the merging firms countries are less likely to be correlated, which falls in the category of the target operating in the RoW (=World-G7) rather than in the G6 (=G7-UK) group of countries. However, this is disappearing or even reversed in the post-merger period. We argue that the EMVCs at home, relative to host countries, allow managers to time the market and acquire targets at a discount, particularly in markets in which their stocks are likely to be more overvalued than their targets. UK acquirers also reap superior gains from M&As announced during relatively strong trade-weighted effective exchange rate of the domestic currency. In the context of domestic versus foreign target M&As we find that M&As of foreign targets from the RoW (G6) group of countries yield higher (lower) acquirer gains compared to acquiring domestic targets when occurring during periods of high-EMVCs at home. We argue that a possible explanation for this finding is that the EMVCs in the RoW (G6) are lower (similar) to the ones at home, hence, acquirers are more (less) likely to acquire targets at a discount. Overall, our results suggest that acquirers aiming to maximize shareholder wealth can extract signals from EMVCs at home relative to those in host countries, and carefully pick the timing of their M&As announcements.

We contribute to the related literature by demonstrating the role of EMVCs at home relative to EMVCs in the host countries, in the case of CBAs, on the the short- and long-run gains of acquirers. Our findings suggest that firms willing to engage in acquisitions should consider not only the merging firms- and deal-specific features, but also the possible implications of factors pertinent to the wider economy such as EMVCs at home, relative to EMVCs in the host country in the case of CBAs. Therefore, a simultaneous analysis of EMVCs in the merging firms countries can assist managers in timing the announcement of both domestic and foreign target M&As and maximize shareholder wealth.

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[5] See for example, Doukas and Travlos (1988), Lowinski et al. (2004), Gregory and McCorriston (2005), Moeller and Schlingemann (2005), and Barbopoulos et al. (2012).

The rest of the paper is organized as follows. Section 2 develops our hypotheses. Section 3 discusses the data and methodology employed. The empirical results are reported in Section 4. Section 5 concludes.

2 Related literature and hypotheses

2.1 EMVCs and gains from M&A

A growing body of literature (e.g. Shleifer and Vishny 2003) suggests that during high-EMVC periods, managers of firms with overvalued stocks are motivated to use their overvalued stocks to bid for targets that they perceive to be less overvalued than themselves. In the long-run, however, when the market corrects for overvaluation, the acquirers suffer a drop in share price indicating long-term under-performance. This theoretical proposition has been supported by the empirical findings of, among others, Rhodes-Kropf et al. (2005). Although the theoretical proposition of Shleifer and Vishny (2003) is limited to all-share deals, a similar effect of high-EMVCs can occur on the performance of acquirers in other types of deals, such as cash and mixed, due to managerial overconfidence and investors' optimism caused by booming markets. The manager of a company whose market value is increasing is likely to be overconfident about one's managerial ability and start bidding for targets, driven by the maximization of their private benefits and prestige or the enhancement of shareholder wealth (Draper and Paudyal 2006). When share prices increase investors are likely to be more confident in their managers and react positively to acquisition decisions. Consequently, acquirers are likely to experience higher announcement period abnormal returns from bids announced at the time of high-EMVCs irrespective of the payment method. In contrast, at the time of low-EMVCs, investors are likely to be skeptical about the value of the deals and react cautiously. This leads to the first testable hypothesis (*H1a*): *M&A announcements during high-EMVC-periods yield higher short-run abnormal returns than deals announced during low-EMVC-periods*. In the long-run, however, there should be a market correction and M&As announced during during high-EMVC-periods should exhibit a stock performance reversal that wipes out the announcement gains or cause significant losses. This leads to our next hypothesis (*H1b*): *M&As announced during periods of high-EMVCs break-even or experience losses in the long-run.*

The short-run performance of bidding firms is a function of investors' optimism regarding the acquisition's future prospect (Rosen 2006). The implications of investors' sentiment, namely confidence, on M&A announcements are likely to differ by the domicile of the target, given that foreign investments generally add to the level of uncertainty regarding the expected value to be generated from the deal, mainly due to its additional exchange rate, economic and political risks.

During periods of low-EMVCs, this added uncertainty exacerbates the already low investor sentiment. Therefore, during low-EMVC periods, foreign acquisitions are expected to deliver lower yields compared to domestic deals. However, during high-EMVC periods acquirers of foreign targets are expected to yield a more favorable market reaction than domestic deals, driven by higher investor optimism. These arguments lead to the second testable hypothesis (*H2*): *CBAs announced during high-EMVC periods at home outperform domestic deals announced during similar periods.*

2.2 Relative equity market valuation conditions and the gains from CBA

Shleifer and Vishny (2003) argue that during high-EMVC periods managers of firms with overvalued shares are motivated to use shares for bidding to acquire targets they perceive to be less overvalued than their own firm. This is particularly interesting in the CBA context as different markets have different levels of EMVCs at any one time. Therefore, at a given level of EMVCs at home, whether acquirers time the market and bid for targets abroad is limited to their ability to identify less overvalued (foreign) targets than themselves. We argue that in CBAs the relative EMVCs (i.e. the deviation of EMVCs between an acquirer's and a target's country) provide an additional insight to the acquiring firms' managers aiming to maximize the wealth of their shareholders.

At a high level of EMVCs at the acquirer's home market a lower correlation with the EMVCs of the target firm's country implies a low (or lower) EMVCs for the target firm. Therefore, acquirers that are overvalued (or even fairly valued) and have higher EMVCs compared to a foreign target's country, they can exploit this EMVC deviation and yield a more favorable market reaction to the M&A announcement. As discussed earlier, while this effect is more pronounce to share deals, it can also apply to other types of deals, such as cash and mixed (i.e. cash and shares), due to managerial overconfidence and investors' optimism caused by the level of EMVCs at home. This leads to the third testable hypothesis (H3): *Acquirers gain significantly more from CBAs announced during periods of high-EMVCs at home and low- or lower-EMVCs in the host country.*

2.3 Strength of domestic currency and gains from M&A

A number of studies on foreign direct investment (for example, di Giovanni 2005) show that the strength of the domestic currency plays a significant role in determining the flow of foreign direct investment. On a theoretical framework Froot and Stein (1991) argue that when the US dollar is weaker compared to foreign acquirers' local currency they will have a purchasing advantage for US targets. In line with this theoretical prediction, Harris and Ravenscraft (1991) find that a weaker US dollar leads to a higher market reaction for US firms being targeted by acquirers with a stronger currency due to their purchasing advantage. When the domestic currency is stronger than its equilibrium value, it is cheaper for acquirers to acquire foreign targets. This should not only enhance M&A activity but also generate higher gains for acquirers. This is because when the domestic currency is strong, the effective price (inclusive of premium) paid to foreign targets is more likely to be less than the equilibrium value of the target. Consequently, such deals are more likely to transfer wealth from target company's shareholders to the shareholders of the acquiring company. This leads to the fourth hypothesis (H4): *M&As announced at times of stronger domestic currency generate higher gains to acquirers.*

3 Data and methodology

3.1 Data

The information on the deal announcements is extracted from Securities Data Corporation (SDC). The sample comprises of 67,229 M&A bids announced by UK firms between 01/01/1986 and 31/12/2010. The sample of M&As analyzed by the paper includes 5880

(4142 domestic and 1738 foreign) deals that meet the following criteria: (1) The acquirer is a UK company traded in the London Stock Exchange; (2) the target is a private, a public, or a subsidiary firm, both domestic and foreign; (3) to avoid the effects of very small transactions, only deals equal to, or greater than, £1 million are included; (4) the market value of the acquirer is greater than £1 million at four weeks prior to the announcement of the deal; (5) acquiring firms are not involved in multiple bids during the 5-day announcement window of $t - 2$ to $t + 2$ days around the announcement day, where $t=0$ is the announcement day; (vi) the daily return to index, market value, and market-to-book-value ratio of the acquirer are obtained from DataStream. Finally, we collect the monthly P/E ratio for the FTSE All Share market index and the monthly P/E ratio for the 9 industry groups from DataStream in order to measure the EMVC.

3.2 Sample statistics

Table 1 reports the annual distribution of M&As announced by UK acquirers between 01/01/1986 and 31/12/2010. The table shows that almost one in three M&A deals (30 %) involve foreign targets. The proportion of CBAs in the UK increased steadily over time, exceeding 40 % of all deals in 2010. In addition, the proportion of CBA in G6 (=G7-UK) countries (20 %) is well over the proportion of CBA in the Rest of the World (RoW=-World-G7) group of countries (10 %). We follow this classification due to the evidence that the economic activity and stock market performance of the G7 countries (UK, US, Canada, Germany, France, Italy, and Japan) are more integrated than the rest-of-the-world (Jansen and Stokman 2004). The statistics also show that in approximately 51 % of the deals the merging firms are based in the same-industry (based on the same 2-SIC code) while the remaining 49 % are diversified deals. Approximately half of our sample of M&As are settled in cash (44 %), while share only deals constitute 7 % of the total number of deals in the sample. The proportion of cash only deals is much larger in CBA, while only about one in twenty CBA deals are settled in shares. The largest deals in our sample were announced during the dot com bubble (£479.3 m) followed by deals announced before, and immediately after, the 2007 financial crisis. Moreover, the highest takeover premia are offered during 1997 and 1998, whereas, acquirers enjoyed the higher announcement period abnormal returns during the years 1993, 1999 and 2005.

Table 2 (Panel A) shows that unlisted targets account for about 91 % of all deals, while only one in ten deals involve listed targets. The dominance of unlisted targets in UK takeover deals is consistent with Draper and Paudyal (2006). The remaining statistics of either transaction- or firm-specific characteristics reported in Panel A show that the number of deals occurring during periods of high- versus low-EMVCs, is higher (1598 vs. 1545). Noticeably, the sum of deal value in each group is substantially higher for deals occurring during periods of booming than depressed markets across all classifications.

The total deal value of CBA deals is almost double than domestic deals (£331bn vs. £177bn), while CBA deals are larger in the G6 countries compared to the RoW countries (£276bn vs. £55bn). Table 2 (Panel B) also shows that the acquirers of foreign targets are more mature (19.26 years) than their counterparts of domestic targets (14.65 years). Furthermore, the average market capitalization of acquirers engaged in domestic M&As is less than the average market capitalization of acquirers engaged in CBAs (£441.84 vs. £1632.95 m). Acquirers of targets in the RoW countries (£1667.03 m) are larger than acquirers in the G6 countries (£1616.18 m) albeit the deals being larger for the latter (£236.95 m) than the former (£95.38 m) group. Furthermore, the average acquirer of a

Table 1 Annual M&A activity by target firm's domicile, industry, and method of payment

Year	ALL	DOM	CBA	G6	ROW	FOC	DIV	CASH	STOCK	UNL	LISTED	DV	MV	PREM	CAR
1988	42	34	8	8	0	12	30	17	4	35	7	38.9	492.0	36.2 %	−0.38 %
1989	336	247	89	67	22	138	198	163	30	294	42	33.6	402.3	45.5 %	−0.18 %
1990	204	149	55	39	16	86	118	105	14	184	20	28.1	420.9	35.4 %	0.11 %
1991	137	113	24	16	8	55	82	54	15	115	22	38.9	768.9	37.2 %	0.43 %
1992	138	107	31	21	10	49	89	59	11	133	5	13.1	534.6	17.0 %	0.42 %
1993	210	162	48	33	15	85	125	90	17	194	16	43.8	439.3	40.1 %	2.49 %
1994	262	201	61	41	20	127	135	118	24	242	20	28.8	438.5	34.5 %	1.06 %
1995	278	200	78	61	17	107	171	106	18	259	19	43.3	556.0	20.9 %	0.90 %
1996	315	233	82	58	24	142	173	138	22	288	27	47.4	520.2	30.1 %	1.47 %
1997	383	262	121	81	40	165	218	152	23	352	31	66.0	626.8	46.8 %	0.96 %
1998	411	282	129	86	43	222	189	212	20	368	43	56.3	674.8	48.5 %	1.35 %
1999	433	298	135	97	38	252	181	197	26	366	67	479.3	1154.2	42.7 %	3.47 %
2000	434	294	140	91	49	244	190	160	43	388	46	113.2	1179.7	40.8 %	0.83 %
2001	302	208	94	69	25	166	136	104	19	275	27	38.4	757.2	44.5 %	0.84 %
2002	217	163	54	32	22	115	102	110	14	203	14	70.9	730.6	43.5 %	1.88 %
2003	193	127	66	50	16	123	70	92	10	175	18	43.6	875.7	38.2 %	2.74 %
2004	214	151	63	45	18	124	90	81	11	205	9	42.0	719.6	26.4 %	1.30 %
2005	292	210	82	52	30	173	119	128	16	266	26	71.3	1036.8	16.4 %	2.56 %
2006	298	202	96	54	42	180	118	127	9	280	18	52.8	674.5	29.9 %	1.45 %
2007	336	226	110	59	51	201	135	129	13	310	26	63.2	1198.5	41.8 %	1.71 %
2008	183	111	72	47	25	107	76	86	8	174	9	67.7	957.8	39.5 %	0.47 %
2009	96	63	33	19	14	56	40	44	12	79	17	48.3	1224.8	45.6 %	1.12 %
2010	166	99	67	39	28	89	77	93	9	153	13	83.1	1705.4	26.0 %	1.49 %
Total	5880	4142	1738	1165	573	3018	2862	2565	388	5338	542	–	–	–	–
% of all	–	70 %	30 %	20 %	10 %	51 %	49 %	44 %	7 %	91 %	9 %	–	–	–	–

Table 1 continued

Year	ALL	DOM	CBA	G6	ROW	FOC	DIV	CASH	STOCK	UNL	LISTED	DV	MV	PREM	CAR
Average	–	–	–	–	–	–	–	–	–	–	–	70.1	786.5	35.9 %	1.24 %

The table presents the annual distribution of M&As announced by UK acquirers between 01/01/1986 and 31/12/2010. The distribution of M&As is presented according to the target firm's domicile (domestic, foreign, and foreign deals' subgroups including the G6 (=G7–UK) and the RoW (=World–G7)), merging firms' industry classification (focused and diversifying), cash and stock M&A payment methods, listing status of the target firm (unlisted and listed), annual average deal value (DV), annual average acquirer size measured by its market capitalization (MV) 20 days prior to the M&A announcement, annual average takeover premium 1 week prior to the M&A announcement (offered by SDC Thomson-ONE), and annual average announcement period Cumulative Abnormal Return (CAR as estimated in Eq. 1) earned by acquirers' shareholders. Appendix 1 refers to the definition of each variable

Table 2 Summary statistics

Panel A

	ALL	DOM	CBA ALL	G6	RoW	Focused (FOC)	Diversifying (DIV)	CASH	STOCK	Target listing status Unlisted	Target listing status Public
ALL											
N	5880	4142	1738	1165	573	3018	2862	2565	388	5338	542
%	–	70	30	20	10	51	49	44	7	91	9
Sum of DV (in £ bn)	508	177	331	276	55	363	145	123	54	177	331
Low-EMVCs											
N	1545	1136	409	287	122	742	803	682	117	1406	139
%	26	19	7	5	2	13	14	12	2	24	2
Sum of DV (in £ bn)	71	41	30	24	7	34	37	26	8	43	28
Neutral-EMVCs											
N	2737	1912	825	538	287	1435	1302	1181	165	2498	239
%	47	33	14	9	5	24	22	20	3	42	4
Sum of DV (in £ bn)	149	80	69	40	28	98	51	62	26	79	70
High-EMVCs											
N	1598	1094	504	340	164	841	757	702	106	1434	164
%	27	19	9	6	3	14	13	12	2	24	3
Sum of DV (in £ bn)	288	56	232	212	20	231	57	35	21	55	233

Panel B

	MV (in £ m) Mean	MV (in £ m) Median	DV (in £ m) Mean	DV (in £ m) Median	Deal relative size Mean	Deal relative size Median	MTBV Mean	MTBV Median	Age (in years) Mean	Age (in years) Median	Liquidity Mean	Liquidity Median	Leverage Mean	Leverage Median	Premium Mean	Premium Median
ALL	793.91	121.72	86.33	7.20	0.34	0.07	2.87	2.07	16.02	12.46	0.13	0.08	22.03	17.25	38.71	35.25
Low-EMVCs	620.83	114.14	46.10	6.50	0.28	0.07	3.79	2.05	16.14	13.71	0.13	0.08	18.83	16.68	37.92	36.13
Neutral-EMVCs	805.16	115.23	54.39	7.00	0.32	0.07	2.70	2.05	16.05	12.14	0.14	0.08	19.32	16.81	36.70	31.89

Table 2 continued

	MV (in £ m)		DV (in £ m)		Deal relative size		MTBV		Age (in years)		Liquidity		Leverage		Premium	
	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median	Mean	Median
High-EMVCs	941.99	135.83	179.92	8.48	0.43	0.07	2.31	2.16	15.83	11.77	0.14	0.09	29.55	18.36	41.77	38.48
Domestic (DOM)	441.84	81.66	42.71	6.00	0.36	0.08	2.64	1.88	14.65	10.64	0.13	0.07	22.88	16.10	37.29	34.97
CBA (ALL)	1632.95	342.91	190.28	11.63	0.30	0.05	3.42	2.47	19.26	20.00	0.15	0.11	20.03	18.91	42.24	35.65
CBA (G6)	1616.18	353.32	236.95	13.35	0.25	0.05	3.02	2.54	19.78	20.93	0.15	0.11	20.42	19.75	41.42	36.82
CBA (RoW)	1667.03	296.95	95.38	8.70	0.39	0.04	4.22	2.40	18.21	16.37	0.17	0.11	19.24	17.44	44.85	24.48
Focused	780.45	116.20	120.25	7.65	0.28	0.08	2.90	2.05	14.08	9.89	0.14	0.08	24.80	17.23	39.97	34.77
Diversifying	808.10	124.85	50.56	6.80	0.40	0.06	2.84	2.10	18.06	18.31	0.13	0.08	19.06	17.28	37.34	36.13
Unlisted	679.06	114.40	33.16	6.28	0.32	0.06	2.98	2.09	15.85	12.15	0.13	0.08	22.14	17.09	86.94	65.52
Public	1924.99	256.00	609.95	50.23	0.54	0.24	1.83	1.89	17.66	15.69	0.14	0.09	20.84	18.42	38.35	34.97
Cash	1146.28	202.75	47.97	7.58	0.16	0.04	2.28	2.06	18.89	19.88	0.12	0.08	26.60	19.34	39.11	34.57
Stock	574.04	50.93	138.54	10.15	1.48	0.27	2.49	1.87	11.70	7.76	0.19	0.11	17.79	14.27	38.39	31.49

In Panel A the sample is classified by target firm's domicile (domestic, CBA, and CBA sub-groups including the G6 (=G7-UK) and the RoW (=World-G7)), SIC 2-digit industry classification (focused and diversifying), method of payment (cash and stock), and target firm's listing status (unlisted and listed). The sample comprises M&As announced by UK acquirers between 01/01/1986 and 31/12/2010 and recorded by the SDC. Acquirers are firms listed in the London Stock Exchange (LSE). In Panel A, N represents the number of deals; % is number of deals in a group as a proportion of All deals in each column rounded off to the nearest integer; Sum of DV in billions pounds is the sum of deal values of all deals in each group; the sum of DV is rounded off to the nearest billion pounds. In Panel B the mean and median are the group mean and median. The process of de-trending is discussed in Sect. 3.3. All variables are defined in the Appendix 1

domestic target is less liquid than the corresponding acquirers of a foreign target (0.13 vs. 0.15), has higher leverage (22.88 vs. 20.03), and pays lower premia (37.29 vs. 42.24 %).

3.3 Classification of high-, neutral-, and low-EMVCs

The EMVC is measured by market P/E ratio, using the FT All share index as market proxy and since the measure of EMVCs possesses an up-ward trend, it is de-trended using the method outlined in Bouwman et al. (2009). First, the best straight line fit value of the variable is removed from the observed value in each month and in five years preceding the announcement. Second, each month is categorized as above (below) the average if the detrended value of the variable for the month is above (below) the average of the previous five years. Finally, the upper half of the above-average months (i.e., the 25 % top months) are classified as high value periods and the lower half of the below-average months (i.e., the 25 % bottom months) are classified as low value periods. All other months in the sample (i.e., 50 % of the middle months) are classified as neutral. As implied by the stock market valuation argument of Shleifer and Vishny (2003), merger activity increases during high-EMVC periods (Table 2, Panel A). Moreover, this pattern holds for both domestic and CBAs, focused and diversified deals.

3.4 Methodology

The performance of acquirers is analyzed by indicators of EMVCs using both univariate and multivariate frameworks. For the univariate analysis, first the excess returns of acquirers announcing bids under various financial conditions are tested, followed by the comparison of the gains of such acquirers. Finally, the gains of acquirers by the domicile of their targets (domestic targets, foreign targets, acquirers of targets in G6 countries, and in the RoW) and EMVCs at the time of the bid announcement are also compared. Under multivariate analysis, similar tests on the gains of acquirers are performed after controlling for the effects of other factors using cross-sectional regressions that are known to affect the gains to acquirers.

Because of multiple bids by the same acquirers occurring within a short period, sufficiently long time series of stock returns that are free from the effects of takeover bids are not available to apply conventional time-series based excess-return estimation models. Therefore, we follow Draper and Paudyal (2008) Fuller et al. (2002) and Faccio et al. (2006) among others and use the market adjusted returns to estimate the announcement period abnormal returns.,[6][7] As a result, for measuring the announcement period abnormal returns of acquirers the market-adjusted model is employed as shown in Eq. 1:

$$AR_{it} = R_{it} - R_{mt} \tag{1}$$

where, R_{it} is the return of firm i on day t, and R_{mt} is the market return measured by the changes in FT-All Share Index (inclusive of dividends). The abnormal returns (AR_{it}) are

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[6] A large number of bidder firms are typically engaged in multiple acquisitions and takeover bids which can reduce significantly the number of sample firms having "sterile" risk parameters, potentially biasing our findings. Never the less, for short event windows, the use of traditional and well established methods of estimating abnormal returns does not improve significantly the accuracy of abnormal returns (Brown and Warner 1980).

[7] We employ alternative estimation methods for calculating the acquiring firm's abnormal returns based on the estimation of the model parameters of the 1-factor CAPM, the Fama and French (1993) 3-factor model, and the Carhart (1997) 4-factor model. Our results remain unaltered.

cumulated for the 5-days $(t-2, t+2)$ surrounding the M&A bid announcements, as shown in Eq. 2:

$$CAR_i = \sum_{t-2}^{t+2} AR_{it} \tag{2}$$

3.5 Long-run performance of acquirers

To examine the post-merger performance of acquirers, the standard buy-and-hold-abnormal return (BHARs) approach (Barber and Lyon 1997) is implemented. The monthly abnormal return is calculated as the acquiring firm's BHARs less the BHARs of the market portfolio over the period T (1, 3, or 5 years following the acquisition announcement month), as shown in Eq. (3):

$$BHAR_{it} = \prod_{t=1}^{t=T}(1 + R_{it}) - \prod_{t=1}^{t=T}(1 + R_{mt}) \tag{3}$$

where R_{it} is the monthly return for firm i; R_{it} is the monthly return of the market index; t represents the 12, 36, 60 month after the acquisition's month. The monthly BHAR of each bidder is regressed against a set of explanatory variables, similar to the control factors included in the analysis of announcement period returns, which are presented in the Sect. 3.6.

3.6 Multivariate analysis

To further investigate the implications of relative EMVCs on announcement period gains of the UK acquirers, we examine the impact of relative EMVCs after controlling for other factors that are known to affect acquirers' gains simultaneously. We do so by employing Eq. (4) estimated in a nested regression form with various combinations of explanatory variables discussed below.

$$alpha_i = \beta_1 + \sum_{j=2}^{k} \beta_j X_{ij} + \varepsilon_i \quad i = 1 \ldots N \tag{4}$$

When Eq. (4) is applied to analyzing the announcement period gains, the dependent variable ($alpha_i$) is measured by the 5-days cumulative excess return of acquirers as explained in Eq. (1). Alternatively, when Eq. (4) is applied to analyzing the post-merger acquirer performance, the dependent variable ($alpha_i$) is measured by the 1-, 3- and 5-years BHARs of acquirers as explained in Eq. (3). The intercept β_1 in Eq. (4) reflects the excess returns of acquirers after controlling for the effects of all explanatory variables, incorporated in the vector X_{ij}, simultaneously, the impact of which is recorded in the vector β_j. The vector of explanatory variables $X_{i,j}$ includes a set of explanatory variables discussed below.

Earlier literature, based on the experience of listed targets, shows that cash-only acquirers experience the highest gains, while share-only acquirers suffer a loss. However, Travlos (1987) shows that the method of payment interacts with the listing status of targets in shaping the gains of acquirers. Therefore, to control for the *methods of payment*, deals are classified into cash only, shares only, and mixed. Moreover, on the announcement of

M&A deals acquirers of unlisted targets gain more than acquirers of listed targets (Draper and Paudyal 2006). Therefore, we control for the *listing status of targets*, namely listed, private and subsidiary.

Larger acquirers gain less than smaller acquirers on the announcements of bids (Moeller et al. 2004). Therefore, to allow for this effect we control for the *size of the acquirer*, measured by their market capitalization (MV) four weeks before the announcement of the deal. Sudarsanam and Mahate (2003), among others, show that value acquirers (firms with low market-to-book value ratio) outperform glamour acquirers (firms with high market-to-book value ratio) in the short-run. Thus, we control for the *growth opportunity of bidding firms*, measured by the market-to-book value (MTBV) ratio one month prior to the announcement of the deal.

Draper and Paudyal (2008) suggest that acquirers' announcement period gains are dependent on the level of public information. Barry and Brown (1985) show that more information is available in the public domain in relation to firms with a long trading history. Since mature firms are likely to have a longer trading history, consequently more publicly available information, we control for *acquirer's maturity (age)* measured by the number of days from the date a firm is first recorded on DataStream[8] and the date of the announcement. Several studies (Asquith et al. 1993) have shown that the acquirers' announcement period returns increase with the size of the target relative to the value of the acquirer. This may be due to the stronger impact on the structure of the organization of the acquiring firm that relatively larger targets may have. It is also possible that the observed positive relation between the relative size of the deal and gains from acquisitions is simply a statistical effect as a relatively larger deal is likely to generate higher synergy gain, which could be substantial relative to the size of acquirer. *The relative size of the deal* is measured by the ratio of the acquirer's market capitalization to the value of the deal.

We also control for the *Effective Exchange Rate* (Effect. Ex. Rate) of Pound Sterling obtained from the Bank of England's statistical database in order to account for the impact of the strength of the domestic currency on acquirers' gains.[9] In addition, we add a set of dummy variables that is assigned the value of 1 (0 otherwise) to control for: CBA deals, diversifying deals (defined as a deal when target and acquirer do not share the same 2-digit SIC code),[10] private targets, cash-only deals, stock-only deals, high EMVC period, period of strong domestic currency, and frequent acquirers. Finally, variables representing interactions between various measures of EMVCs are also introduced in the model.

4 Empirical results

4.1 Acquirers' announcement period gains

This section presents and discusses the findings from the univariate and multivariate analysis of announcement period and long-run gains of acquirers against financial

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[8] This date corresponds to the first trading day of a listed firm. Since the disclosure requirements of listed firms are much more stringent and systematic, the listing period is a good proxy measure of the level of information in the public domain.

[9] See www.bankofengland.co.uk. Moreover, the first difference of the effective exchange rate index (i.e. changes is the value) of Pound Sterling does not have any trend and hence its de-trending is not required.

[10] Anderson et al. (2011) report mixed evidence on the impact of corporate diversification on firm risk, though, they suggest that on average diversification does not decrease firm risk.

Table 3 Acquirers' announcement period returns by EMVCs and target firm's domicile

	Equity market valuations conditions				
	ALL	Low-EMVCs	Neutral-EMVCs	High-EMVCs	HML-EMVCs
Panel A: Market-adjusted model					
ALL					
Mean	1.36***	1.04***	1.18***	1.99***	0.95***
Median	0.52***	0.51***	0.46***	0.66***	0.15*
N	5880	1545	2737	1598	
Domestic					
Mean	1.38***	1.08***	1.21***	2.01***	0.93**
Median	0.51***	0.50***	0.48***	0.60***	0.10
N	4142	1136	1912	1094	
CBA (ALL)					
Mean	1.32***	0.93***	1.12***	1.95***	1.02*
Median	0.52***	0.53**	0.42***	0.79***	0.26
N	1738	409	825	504	
CBA (G6)					
Mean	0.97***	0.75**	0.89***	1.28**	0.54
Median	0.39***	0.37	0.38**	0.57*	0.20
N	1165	287	538	340	
CBA (RoW)					
Mean	2.02***	1.36***	1.55***	3.33***	1.98*
Median	0.84***	1.14**	0.49***	1.29***	0.15
N	573	122	287	164	
Differentials					
Domestic versus CBA (ALL)					
Mean	0.06	0.15	0.09	0.06	
Median	−0.01	−0.02	0.07	−0.19	
Domestic versus CBA (G6)					
Mean	0.42*	0.34	0.32	0.73	
Median	0.13*	0.13	0.10	0.03	
Domestic versus CBA (RoW)					
Mean	−0.63*	−0.27	−0.34	−1.32	
Median	−0.33**	−0.64	0.00	−0.69*	
G6 versus RoW					
Mean	−1.05***	−0.61	−0.66	−2.05**	
Median	−0.45***	−0.77**	−0.10***	−0.72**	
Panel B: Carhart (1997) 4-factor model					
ALL					
Mean	1.56***	1.09***	1.36***	2.34***	1.25***
Median	0.62***	0.49***	0.67***	0.62***	0.13
N	5880	1545	2737	1598	

Table 3 continued

	Equity market valuations conditions				
	ALL	Low-EMVCs	Neutral-EMVCs	High-EMVCs	HML-EMVCs
Domestic					
Mean	1.62***	1.16***	1.38***	2.52***	1.36***
Median	0.62***	0.52***	0.71***	0.50***	−0.02
N	4142	1136	1912	1094	
CBA (ALL)					
Mean	1.40***	0.89***	1.33***	1.94***	1.04**
Median	0.62***	0.44***	0.62***	0.78***	0.34
N	1738	409	825	504	
CBA (G6)					
Mean	0.99***	0.88**	1.02***	1.05**	0.17
Median	0.50***	0.46*	0.53***	0.51*	0.05
N	1165	287	538	340	
CBA (RoW)					
Mean	2.25***	0.94**	1.93***	3.78***	2.85***
Median	0.80***	0.41***	0.80***	1.48***	1.07**
N	573	122	287	164	
Differentials					
Domestic versus CBA (ALL)					
Mean	0.22	0.27	0.05	0.59	
Median	0.00	0.08	0.09	−0.28	
Domestic versus CBA (G6)					
Mean	0.63**	0.29	0.36	1.48**	
Median	0.12*	0.06	0.18	−0.01	
Domestic versus CBA (RoW)					
Mean	−0.62*	0.23	−0.55	−1.26	
Median	−0.18*	0.11	−0.09	−0.98**	
G6 versus RoW					
Mean	−1.26***	−0.06	−0.91*	−2.74***	
Median	−0.30***	0.05	−0.27	−0.97***	
Panel C: Fama and French (1993) 3-factor model					
ALL					
Mean	1.34***	1.01***	1.29***	1.73***	0.71**
Median	0.46***	0.45***	0.51***	0.40***	−0.05
N	5880	1545	2737	1598	
Domestic					
Mean	1.39***	1.10***	1.31***	1.82***	0.72*
Median	0.48***	0.46***	0.57***	0.30***	−0.15
N	4142	1136	1912	1094	
CBA (ALL)					
Mean	1.21***	0.78***	1.24***	1.53***	0.75
Median	0.41***	0.32**	0.35***	0.62***	0.30

Table 3 continued

	Equity market valuations conditions				
	ALL	Low-EMVCs	Neutral-EMVCs	High-EMVCs	HML-EMVCs
N	1738	409	825	504	
CBA (G6)					
Mean	0.85***	0.78**	0.88***	0.85*	0.07
Median	0.31***	0.46*	0.26*	0.38	−0.07
N	1165	287	538	340	
CBA (RoW)					
Mean	1.96***	0.77*	1.90***	2.94***	2.17**
Median	0.59***	0.23**	0.47***	0.77***	0.54
N	573	122	287	164	
Differentials					
Domestic versus CBA (ALL)					
Mean	0.17	0.32	0.08	0.29	
Median	0.07	0.14	0.22	−0.32	
Domestic versus CBA (G6)					
Mean	0.54**	0.32	0.43	0.97*	
Median	0.17	0.00	0.31	−0.08	
Domestic versus CBA (RoW)					
Mean	−0.57	0.33	−0.59	−1.12	
Median	−0.11	0.23	0.10	−0.47**	
G6 versus RoW					
Mean	−1.11***	0.01	−1.02*	−2.09**	
Median	−0.28*	0.23	−0.21	−0.38**	
Panel D: 1 year (12 months) post-merger BHARs					
ALL					
Mean	−1.99***	−3.74***	−5.10***	5.04***	8.78***
Median	−6.31***	−6.63***	−7.80***	−3.46***	3.17***
N	5876	1543	2735	1598	
Domestic					
Mean	−2.90***	−4.08***	−6.99***	5.47***	9.56***
Median	−7.23***	−8.17***	−9.41***	−2.91**	5.26***
N	4138	1134	1910	1094	
CBA (ALL)					
Mean	0.19	−2.80	−0.71	4.10	6.90*
Median	−4.04***	−3.75**	−4.02***	−4.28**	−0.53
N	1738	409	825	504	
CBA (G6)					
Mean	0.60	−4.23**	−2.49	9.58**	13.82***
Median	−3.22***	−3.58*	−4.17***	−1.18	2.40
N	1165	287	538	340	
CBA (RoW)					
Mean	−0.64	0.58	2.62	−7.25**	−7.83

Table 3 continued

	Equity market valuations conditions				
	ALL	Low-EMVCs	Neutral-EMVCs	High-EMVCs	HML-EMVCs
Median	−5.82***	−4.98*	−3.94	−9.20***	−4.23
N	573	122	287	164	
Differentials					
Domestic versus CBA (ALL)					
Mean	−3.09**	−1.29	−6.28***	1.37	
Median	−3.19**	−4.41	−5.39***	1.37	
Domestic versus CBA (G6)					
Mean	−3.50**	0.15	−4.50**	−4.11	
Median	−4.01**	−4.59	−5.24**	−1.73	
Domestic versus CBA (RoW)					
Mean	−2.26	−4.66	−9.61**	12.72***	
Median	−1.41	−3.19	−5.47**	6.29**	
G6 versus RoW					
Mean	1.24	−4.81	−5.11	16.84***	
Median	2.60	1.40	−0.23	8.02**	
Panel E: 5 years (60 months) post-merger BHARs					
ALL					
Mean	−5.99***	−15.00***	−7.10***	4.66	19.66***
Median	−30.35***	−43.75***	−30.35***	−16.86***	26.90***
N	5845	1539	2719	1587	
Domestic					
Mean	−7.55***	−15.70***	−10.71***	6.40	22.10***
Median	−35.42***	−47.25***	−36.44***	−21.58***	25.66***
N	4118	1130	1899	1089	
CBA (ALL)					
Mean	−2.26	−13.06**	1.24	0.86	13.92*
Median	−18.37***	−32.79***	−13.96***	−11.85***	20.94***
N	1727	409	820	498	
CBA (G6)					
Mean	−1.41	−15.60**	4.39	1.45	17.05*
Median	−18.64***	−40.01***	−11.28***	−12.20***	27.81***
N	1159	287	536	336	
CBA (RoW)					
Mean	−3.98	−7.10	−4.70	−0.37	6.73
Median	−17.55***	−21.32***	−19.33***	−10.47	10.85*
N	568	122	284	162	
Differentials					
Domestic versus CBA (ALL)					
Mean	−5.30	−2.64	−11.95**	5.54	
Median	−17.05***	−14.46**	−22.48***	−9.73	

Table 3 continued

	Equity market valuations conditions				
	ALL	Low-EMVCs	Neutral-EMVCs	High-EMVCs	HML-EMVCs
Domestic versus CBA (G6)					
Mean	−6.14	−0.10	−15.10**	4.95	
Median	−16.78***	−7.24	−25.16***	−9.39	
Domestic versus CBA (RoW)					
Mean	−3.57	−8.60	−6.00	6.77	
Median	−17.87***	−25.93**	−17.11**	−11.11	
G6 versus RoW					
Mean	2.57	−8.50	9.10	1.83	
Median	−1.09	−18.69	8.05	−1.73	

The table presents 5-day ($t − 2$, $t + 2$) announcement period's cumulative abnormal returns (CAR) in percent measured as in Eq. 2, as well as the 1- and 5-year post-merger buy-and-hold abnormal returns (BHAR) in percent measured as in Eq. 3. Both the CARs and BHARs are reported by the domicile of targets (domestic, CBA, and CBA sub-groups) and equity market valuations conditions (EMVCs). The financial conditions are classified by the de-trended market P/E ratio of FTSE All-Share Market Index. EMVCs is depicted as announcement periods of depressed (Low-EMVCs), neutral (Neutral-EMVCs), and booming (High-EMVCs) markets. The table further reports acquirers' CAR by the state of EMVCs (HML EMVCs stands for High Minus Low EMVCs) and the differentials between acquirers' gains from domestic and foreign (CBA) deals. In Panel A the acquirers' CAR is estimated based on the adjusted market model (as shown in Eq. 1). In Panel B the acquirers' CAR is estimated based on the Carhart (1997) 4-factor model. In Panel C the acquirers' CAR is estimated based on the Fama and French (1993) 3-factor model. In Panel D and E the acquirers' BHAR for 1- and 5-years, respectively. The process of de-trending is discussed in Sect. 3.3. All variables are defined in the Appendix 1. The significance of the difference the means of two groups of acquirers is tested by using the t test of equality of means. The significance of the median is tested by using the 'Sign' test. The significance of the difference between the medians of two groups of acquirers is tested by using the Wilcoxon two-sample test. The number of deals (N) for each group is reported below the estimates of excess returns

***, **, * Significance level at 1, 5, and 10 %, respectively

conditions (i.e. EMVCs) at the time of M&As announcements. The gains are also analyzed by the targets' domicile. The results reported in Table 3 (Panel A) show that the average acquirer earns statistically significant gains (1.36 %) on the announcement of a takeover bid. Table 3 (Panels B and C) show similar findings when the 3- and 4-factor models are used to estimate the acquirer gains. This is consistent with UK studies that include M&As of both listed and unlisted targets (Draper and Paudyal 2006). The table further shows that firms acquiring domestic targets earn no significantly different abnormal returns to firms acquiring foreign targets (diff = 0.06 %), consistent with Lowinski et al. (2004). However, further analysis (Panel A) shows that domestic target acquirers: (1) outperform acquirers of foreign targets in the G6 group of countries by 0.42 %; and (2) outperform acquirers of foreign targets in the RoW group of countries by 0.63 %. In Table 3 (Panels B and C) we estimate the CARs based on the 3-factor Fama–French (1993) and 4-factor Carhart (1997) models, respectively, where we report similar findings. Moreover, among the CBAs, acquirers enjoy 1.05 % higher abnormal returns when targets are based in the RoW rather than in the G6 group of countries (Panel A). Whether these gains to acquirers in the framework of domestic deals versus CBAs are driven by the impact of EMVCs at home, relative to those in the host countries, is empirically investigated in this paper and the results are recorded in the following section.

4.2 EMVCs and acquirers' short- and long-run gains

Analysis of the acquirers' gains by the EMVCs at the time of the M&A announcement reveal that the gains increase monotonically with EMVCs (Table 3, Panels A, B and C). The average gains to all acquirers increase from 1.04 % for M&As announced during low-EMVC periods to 1.99 % during high-EMVC periods (Panel A), or from 1.09 % for M&As announced during low-EMVC periods to 2.34 % during high-EMVC periods (Panel B). These findings are consistent with Bouwman et al. (2009) who show that acquirers enjoy higher short-term gains from announcing bids in high- rather low-EMVC periods. This pattern holds for the analysis based on the de-trended industry P/E ratio, confirming that the results are robust to the methods of assessment of market conditions. This evidence is not sensitive to the choice of the method of payment and confirms the prediction that acquirers should gain more from bids announced at the time of high-EMVCs due to favorable investors' sentiment (optimism). Overall, the results support part of the first hypothesis (*H1a*) and provide additional evidence in support of the neoclassical theory of mergers.

Further analysis shows that EMVCs play a significant role in explaining the difference in acquirers' gains by their targets' domicile (differentials recorded in Panels A, B and C). In particular, acquirers experience similar abnormal from domestic versus foreign M&As (as a whole) regardless the level of EMVC in the UK at the time of M&A announcements. However, we find that the groupings of the countries of foreign targets according to the degree of correlation of the EMVCs between home and host markets plays a significant role. Specifically, acquirers' shareholders earn 1.48 % higher abnormal returns when they acquire targets in the domestic rather than G6 group of countries (Panel B) or 0.97 % higher abnormal returns (Panel C), when the deal is made during periods of high-EMVCs. As the EMVCs between the home and host (G6) countries are highly correlated (see Appendix 2), the impact of EMVCs between the merging firms markets remains trivial. However, M&As of foreign targets in the RoW countries: (a) earn similar abnormal returns to domestic target acquirers, and (b) enjoy significantly higher abnormal returns to acquirers in the G6 countries—especially during high-EMVC periods.[11] We argue that the EMVCs at home relative to those in host countries allow acquirers' managers to time the market and acquire targets at a discount, particularly in markets in which their stocks are likely to be more overvalued than their targets. Therefore, a possible reason for these findings is that the EMVCs in the RoW (G6) are lower (similar) to the home ones and hence British acquirers are able (unable) to acquire targets at a discount. Accordingly, this suggests that the null difference between domestic and foreign targets is balanced out by CBAs in the RoW countries, as CBAs in the G6 group are experiencing losses. These findings support the second and third hypotheses (*H2* and *H3*) relating to the level of EMVCs at home, relative to those in host countries, and the gains from domestic versus CBAs. Overall, the findings reported in Table 3 (Panels A–C) show that EMVCs interact with the domicile of targets in shaping the gains to acquirers.

Consistent with our first hypotheses (*H1a and H1b*) and previous studies (Bouwman et al. 2009), our results show that M&As announced during periods of high-EMVCs, while they yield significant gains in the short-run, in the long-run they either break-even or experience significant losses (1-year and 5-years post-merger BHARs, Panels D and E, respectively). For example, while M&As of foreign targets in the RoW group of countries made during periods of high-EMVCs in the UK yield 3.33 % abnormal returns in the short-

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[11] This pattern holds when the 9 industry P/E ratios are employed to assess the market valuation conditions.

run (Panel A), the same deals experience significant losses (−7.25 % monthly BHARs) during 1-year post-merger period (Panel D) or they break-even during the 5-years post-merger period (Panel D). Similarly acquirers of domestic targets (all acquirers) that are announced during period of high-EMVCs gain 2.01 % (1.99 %) significant gains in the short-run, in the long-run they break-even. Therefore, while periods of high-EMVCs are associated with high gains in the short-run due to investors' high sentiment or (over)optimism regarding the high expected returns of their investments, in the long-run there is a market correction and acquirers break-even or even suffer significant losses.

In summary, the results of the univariate analysis reported in Table 3 confirm that acquirers' short- and long-run gains are affected by the level of home-EMVCs at the time of M&A announcements, as well as the domicile of the target firm. This suggests that in making an M&A decision the managers of acquiring firms should consider the levels of EMVCs in the home market.

4.3 Gains of acquirers: a cross-sectional analysis

We further explore in a multivariate framework the impact of EMVCs at home, relative to EMVCs in host countries, along with several other known determinants that influence merger success, on the short- and long-run acquirers' abnormal returns. The results are reported in Table 4.

As indicated by the intercept 'β_1' of models 5 and 7 (models 1–4 and 6), the average acquirer earns significant gains (breaks-even) in the short-run after controlling for the impact of several merging firms- and deal-specific factors, as well as the impact of EMVCs. Models 1–2 show that acquirers enjoy significant gains from deals announced during high-EMVC, despite the domicile of the target firm. This finding supports our first hypothesis (*H1a*). Model 3 further shows that M&As made during periods of high-EMVCs at home and financed with stock are associated with the highest gains to acquirers' shareholders. This provides great further support to our first hypothesis (*H1a*), the empirical findings of Bouwman et al. (2009) and the theoretical findings of Shleifer and Vishny (2003). Among the variables of interest, the strength of the domestic currency (models 1–3) exerts a positive effect on acquirers' gains, which supports our fourth hypothesis *(H4)*. The favorable effect of the strength of the domestic currency is not limited to acquirers engaged in foreign targets, but it is also important for acquirers of domestic targets. Higher gains from domestic target M&As are possible because the strength of domestic currency reflects expected growth in the economy and investors are willing to pay a higher price for stocks of growing/expanding firms. Hence, the markets react favorably to announcements of (also) domestic M&As.

Model 2 shows that UK acquirers of foreign targets in the RoW countries enjoy significant gains in the short-run, which partly supports our second hypothesis (*H2*). Moreover, models 4–6 show that UK foreign acquirers of targets in the RoW rather than G6 countries enjoy significant gains in the announcement period, which is more pronounced if M&As are announced during high-EMVCs periods at home. This supports our third hypothesis (*H3*), which predicts that M&As with targets in countries with EMVCs being lower than those at home yield higher gains to acquirers' shareholders. In contrast, foreign target acquirers in G6 countries experience significant losses or break even in the announcement period relative to domestic target acquirers. We argue that this is the outcome of the high correlation of EMVCs between the UK and G6 countries (Appendix 2), which ultimately diminishes the impact of EMVCs in such deals. Hence our findings on domestic versus G6-only CBAs further confirm the findings reported by Moeller and

Table 4 Determinants of announcement period gains to acquirers: cross sectional analysis

Model: sample	(1) All	(2) All	(3) All	(4) CBA	(5) CBA	(6) CBA	(7) CBA	(8) CBA	(9) CBA	(10) CBA
High-EMVCs	0.008*** (2.84)	0.008*** (2.84)	0.003 (1.18)	0.009** (2.10)	0.014** (2.12)	0.002 (0.37)	0.008 (1.07)	0.134** (2.35)	−0.037 (−0.62)	−0.048 (−0.57)
Stock	0.009** (2.00)	0.009** (2.02)	−0.006 (−0.86)	0.011 (0.92)	0.021* (1.80)	0.007 (0.65)	0.021* (1.78)	0.100 (1.09)	−0.177* (−1.72)	−0.159 (−0.94)
CBA	0.001 (0.51)		0.002 (0.57)							
G6		−0.002 (−0.58)								
RoW		0.008* (1.77)		0.011** (2.26)	0.010* (1.69)	0.008* (1.82)	0.006 (1.00)	0.129*** (2.63)	0.134** (1.98)	0.085 (0.87)
High-EMVCs × stock			0.053*** (5.55)					−0.008 (−0.004)	−0.150 (−0.79)	−0.255 (−1.01)
High-EMVCs × RoW						0.014* (1.80)	0.018* (1.88)	−0.319*** (−2.98)	0.074 (0.53)	0.130 (0.75)
Effect. ex. rate	0.008*** (2.58)	0.008*** (2.97)	0.007*** (2.84)	0.001 (0.28)	−0.001 (−0.02)	0.001 (0.20)	−0.001 (−0.02)	0.006 (0.18)	0.039 (0.72)	0.029 (0.41)
Diversifying	0.001 (0.22)	0.001 (0.24)	0.001 (0.17)	−0.001 (−0.26)	0.002 (0.35)	0.002 (0.37)	0.002 (0.34)	−0.004 (−0.08)	−0.116** (−2.09)	−0.171** (−2.32)
Relative size	0.006*** (5.12)	0.006*** (5.14)	0.006*** (5.13)	0.005*** (4.17)	0.009*** (2.62)	0.006*** (4.57)	0.009*** (5.41)	0.016 (1.29)	0.031** (1.96)	0.017 (0.77)
Acquirer age	0.001 (0.54)	0.001 (0.58)	0.001 (0.53)	−0.001 (−0.61)	−0.002 (−0.69)	−0.001 (−0.39)	−0.002 (−0.69)	−0.001 (−0.06)	0.060** (2.45)	0.079*** (2.70)
Acquirer MTBV	−0.001 (−0.08)	−0.001 (−0.11)	0.001 (0.29)	−0.001** (−2.03)	−0.001** (−2.25)	−0.001* (−1.93)	−0.001** (−2.17)	−0.003*** (−4.98)	0.001 (0.39)	−0.001 (−0.67)
Unlisted target	0.033*** (6.28)	0.033*** (6.27)	0.033*** (6.32)	0.015** (2.01)	0.018** (1.96)	0.013* (1.71)	0.019** (2.05)	0.029 (0.49)	0.043 (0.60)	0.075 (0.84)
Liquidity	0.023*** (2.82)	0.022*** (2.77)	0.022*** (2.78)	0.002 (0.09)	−0.039** (−2.25)	0.003 (0.19)	−0.038** (−2.24)	0.276** (2.24)	0.023 (0.14)	−0.119 (−0.61)

Table 4 continued

Model: sample	(1) All	(2) All	(3) All	(4) CBA	(5) CBA	(6) CBA	(7) CBA	(8) CBA	(9) CBA	(10) CBA
Political stability					0.009 (1.00)		0.009 (0.98)	0.002 (0.03)	0.004 (0.05)	−0.094 (−0.72)
Rule of law		−0.017** (−2.12)	−0.017** (−2.17)		−0.021** (−2.00)		−0.021** (−2.07)	−0.056 (−0.51)	−0.053 (−0.38)	0.061 (0.35)
Crisis	−0.017** (−2.10)			0.015 (1.40)	0.012 (1.03)	0.012 (1.17)	0.011 (0.96)	−0.006 (−0.09)	0.119 (1.04)	0.274 (1.48)
Crisis × CBA	0.018* (1.88)	0.017* (1.72)	0.017* (1.83)							
Crisis × stock	0.188*** (17.14)	0.188*** (17.14)	0.195*** (13.93)							
Crisis × diversified	−0.001 (−0.07)	−0.001 (−0.02)	−0.001 (−0.01)	−0.022 (−1.40)	−0.011 (−0.74)	−0.015 (−1.13)	−0.011 (−0.74)	−0.023 (−0.30)	0.052 (0.38)	−0.014 (−0.07)
Crisis × RoW				−0.009 (−0.66)	−0.020 (−1.48)	−0.006 (−0.45)	−0.016 (−1.22)	−0.262*** (−3.05)	−0.300** (−2.01)	−0.359* (−1.80)
Intercept	−0.013 (−0.95)	−0.013 (−0.96)	−0.011 (−0.84)	0.019 (1.09)	0.057** (2.16)	0.020 (1.08)	0.057** (2.20)	0.072 (0.36)	−0.388* (−1.78)	−0.513* (−1.76)
F-stat	10.19***	9.84***	11.45***	2.70***	3.74***	2.81***	3.62***	3.10***	1.51*	1.29
Adj. R^2 (%)	2.71	2.78	3.21	2.30	5.45	2.40	5.61	5.14	2.57	2.21
Mean VIF	1.57	1.54	1.60	1.65	2.12	1.49	2.16	2.13	2.12	2.11

Table 4 continued

Model: sample	(1) All	(2) All	(3) All	(4) CBA	(5) CBA	(6) CBA	(7) CBA	(8) CBA	(9) CBA	(10) CBA
N	5880	5880	5880	1738	990	1738	990	990	988	987

Announcement period (5-days) market-adjusted abnormal returns for the full sample of acquirers are regressed against a set of explanatory variables that are known to affect acquirers' returns, including the levels of equity market valuations conditions (EMVCs). The dependent variable ($alpha_i$) is measured by the 5-days cumulative abnormal return (CAR_i) of acquirers (Models 1–7) or the post-merger $BHAR_i$ acquirer performance (Models 8–10; Model 8 for 1 year post-merger performance; Model 9 for 2 year post-merger performance; and Model 10 for 3 years post-merger performance). Equation (3) is estimated in a nested regression form using the ordinary least square method:

$$alpha_i = \beta_1 + \sum_{j=2}^{k} \beta_j X_{ij} + \varepsilon_i \quad i = 1 \ldots N \quad (3)$$

The intercept (β_1) measures the abnormal returns generated for acquirers' shareholders after accounting for the effects of all explanatory variables. The vector of explanatory variables, X_{ij}, includes the following: acquirer age estimated as the log of the number of days between the day of bid announcement and the date of the company's first record in DataStream; the relative size of the deal estimated as the log of the ratio of deal value to the market capitalization of the acquirer; the acquirer's market-to-book ratio (MTBV) estimated as the ratio of market-to-book value of equity four weeks prior to the announcement of the bid; liquidity measured as the ratio of total cash and equivalent to the total assets; binary (dummy) variables that take the value of 1 (and 0 otherwise) to represent: CBA deals, diversifying deals (target and acquirer do not share the same 2-digit SIC code), unlisted targets, stock-only deals, High-EMVCs, and periods of strong EER; and Rule of law and Political Stability which are indices measuring the quality of law, stability, and investor protection obtained from World Bank's International Country Risk Guide, as well as the 2007 financial Crisis. The financial conditions are classified by the de-trended market P/E ratio of FTSE All-Share Market Index. The process of de-trending is discussed in Sect. 3.3. All variables are defined in the Appendix 1. Standard errors are corrected for possible heteroscedasticity by using White's (1980) Heteroscedasticity consistent standard errors method. VIF represents the variance inflation factor (multicollinearity test: if VIF > 10 that variable is highly correlated to another one)

***, **, * Significance level at 1, 5, and 10 %, respectively

Schlingemann (2005) whereas our results on domestic vs all CBAs confirm Barbopoulos et al. (2012).[12]

The findings also show the importance of firm and deal- and merging firms-specific features in determining the gains to acquirers' shareholders in the domestic versus foreign target acquisitions. Specifically, the relative size of the deal (across models 1–7), stock payments (models 1, 2, 5 and 7), target listing status (i.e. unlisted, across models 1–7), liquidly of the acquiring firm (models 1–3) have a significant and positive effect on acquirers' gains. The positive effect of the relative deal's size is consistent with previous studies, which conclude that the acquiring firm's abnormal returns increase with the target's size relative to the acquirer's size (Asquith et al. 1983). The case of the evidence of positive gains from stock deals is similar to the findings of Draper and Paudyal (2006). In particular, provided that the UK market is overpopulated by unlisted target deals (Draper and Paudyal 2006), stock financing of such deals leads to higher acquirers' abnormal returns in the short-run (Chang 1998). The estimates also suggest that foreign acquirers with higher market-to-book-value gain more from acquisitions (models 4–7). Finally, our estimates show (models 1–3) that while the market reaction to M&A announcements is lower during the financial crisis, all else equal, acquirers engaged in CBAs or financing M&As with stock, during the 2007 financial crisis, enjoy significant short-run abnormal returns.

As indicated by the intercept 'β_1' of models 9 and 10 (model 8) the average acquirer experiences significant losses (breaks-even) in the long-run from M&As after controlling for the impact of several merging firms- and deal-specific factors, as well as the impact of EMVCs.[13] Moreover, models 9 and 10 highlight that acquirers engaging in M&As during periods of high-EMVCs do not enjoy abnormal returns within 3- and 5-years following the M&A announcement. This is also evident when stock is involved in the M&A financing. Our results are consistent with our hypothesis (*H1b*) and provide some support to the empirical findings of Bouwman et al. (2009). Other results also indicate that diversified acquirers and acquirers bidding for foreign targets from the RoW group of countries during the crisis, experience losses in the post-merger period.

5 Conclusion

We examine whether the short- and long-run abnormal returns of the shareholders of UK firms that engaged in domestic and foreign acquisitions is affected by the home EMVCs at the time of M&A announcements, as well as the relative EMVCs between the merging firms' countries in CBAs. We find that acquirers enjoy significantly higher announcement period gains from deals announced during high- rather than low-EMVC at home, regardless of the domicile of the target firm. However, in the post-merger period, M&As

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[12] Moeller and Schlingemann (2005) show that US acquires enjoy higher gains from domestic deals rather than foreign target ones. However, Meng and Sutton (2016) show that the listing status of the target drives the cross-border effect in two opposite directions: acquirers of private targets fare worse in CBAs, while acquirers of public targets experience significantly higher gains in acquisitions of foreign targets. Barbopoulos et al. (2012) show that UK bidders' gains from domestic vs. foreign target deals are not significantly different. Similarly Lowinski et al. (2004) show that Swiss bidders' gains from domestic vs. foreign target deals are not significantly different.

[13] Allen and Soongswang (2006) show that Thai takeovers result in significant negative abnormal returns in the long-run. Similarly, Du et al. (2016) report negative long-term abnormal returns for Chinese bidders targeting firms across Europe, North America, Australia and Asia.

announced during periods of high-EMVC at home break-even or experience significant losses. We further show that foreign target acquirers enjoy greater gains from deals made during high-EMVCs at home only when the EMVCs between the merging firms' countries are less likely to be correlated, which falls in the category of the target being in the RoW rather than in the G6 group of countries. Our findings also show that during high-EMVCs at home, domestic deals yield higher gains than foreign deals in the G6 countries. Provided that EMVCs in G6 countries are highly correlated to the ones at home (Appendix 2), UK acquirers are less able to extract any gains from CBAs due to the high-EMVCs in the host countries. Hence, in the absence of the impact of EMVCs, the gains of domestic deals versus CBAs confirm those reported by Moeller and Schlingemann (2005) and Barbopoulos et al. (2012).

However, we find that acquirers of domestic targets, and also foreign targets in the RoW countries, realize similar announcement period gains regardless of the level of EMVCs at home. Moreover, within CBAs, deals of targets in the RoW countries outperform those in the G6 countries when announced during periods of high-EMVCs at home. However, this is reversed in the post-announcement period. Provided that the correlation of EMVCs between the UK and the RoW (G6) countries is low (high), UK acquirers are able (unable) to extract significant gains from foreign deals in the RoW (G6) countries that made during high-EMVCs at home, which is reflected in the short-run acquirers abnormal returns. This is possible due to the low EMVCs in the RoW group of countries (as the correlation of EMVCs between the UK and RoW is low). Hence, managers are able to time the market and acquire targets in the RoW countries at a discount, particularly in markets in which their stocks are likely to be more overvalued than their targets.

Overall, our results suggest that acquirers' managers aiming to maximize their shareholders' wealth can extract signals from EMVCs of the home, relative to host countries, and carefully pick the timing of their M&As announcements in both the domestic and foreign market.

Appendix 1

See Table 5.

Table 5 Variables definitions

Variable name	Description	Data source
All deals (ALL)	Refers to the entire sample analyzed in this paper	SDC
Acquirer age (AGE)	Number of days between the day when the acquirer is first recorded on DataStream and bid's announcement day	DataStream
Periods of high equity market valuation conditions (high-EMVCs)	Dummy = 1if the M&A deal is announced during period of high equity market valuations conditions (EMVCs) and = 0 otherwise. The financial conditions are classified by the de-trended market P/E ratio of FTSE All-Share Market Index. See the text for the process of de-trending (Sect. 3.3)	DataStream & SDC
Cash payment (CASH)	Dummy = 1 when the deal is financed with 100 % cash	SDC
Cross-border acquisitions (CBAs)	Dummy = 1 with a UK acquirer and non-UK target and = 0 with both acquirer and target are UK firms (=Domestic [DOM])	SDC
Crisis	Crisis = 1 1if the M&A deal is announced between 01 July 2007 and 30 September 2008 and = 0 otherwise.	SDC
Periods of low equity market valuation conditions (low-EMVCs)	Dummy = 1 if M&A deal is announced during period of low equity market valuations conditions (EMVCs) and = 0 otherwise. The financial conditions are classified by the de-trended market P/E ratio of FTSE All-Share Market Index. See the text for the process of de-trending (Sect. 3.3)	DataStream & SDC
Deal value (DV)	Bid transaction value, in millions pounds	SDC
Diversifying (DIV)	Dummy = 1 when acquirer and target are based in different 2-digit SIC industries and = 0 when both share the same 2-digit industry (=Focused [FOC])	SDC
G6 Group of Countries (G6)	G6 = 1 when a UK acquirer acquires a target that based in the rest of G7 countries (=G7-UK) and = 0 when a UK acquirer acquires a target that based in the rest of the work (RoW=World-G7)	SDC
Cash ratio (liquidity)	Measured by the ratio of total cash and equivalent to the total assets. Since these are annual ratios M&A deals announced before (after) June are matched with the ratio of the previous (same) year	DataStream
Mixed payments (MIXED)	Dummy = 1 when the financing process of the deal includes a mixture of cash, stock, and other methods of payment	SDC
Market-to-book value (MTBV)	Market-to-Book Value of acquirer equity at four weeks and book value of equity from the most recent accounting statement prior to bid announcement	DataStream
Market value (MV)	Acquirer's market value of equity at four weeks prior to bid announcement, in million pounds	DataStream
Periods of neutral equity market valuation conditions (neutral-EMVCs)	Dummy = 1 when the M&A deal is announced during period of neutral equity market valuations conditions (EMVCs) and = 0 otherwise. The financial conditions are classified by the de-trended market P/E ratio of FTSE All-Share Market Index. See the text for the process of de-trending (Sect. 3.3)	DataStream & SDC

Table 5 continued

Variable name	Description	Data source
Acquirer premium (premium)	Takeover premium from Thomson Financial SDC computed as the difference between the offer price and the target's stock price four weeks before the acquisition announcement divided by the latter; values beyond the range of [0, 2] are winsorized following Officer (2003)	SDC
Private (PRV)	Dummy = 1 if target is private and = 0 otherwise	SDC
Public (PUB)	Dummy = 1 if target is public/listed and = 0 otherwise	SDC
RoW group of countries (RoW)	RoW = 1 when a UK acquirer acquires a target that based outside the G6 countries (=World-G7) and = 0 when a UK acquirer acquires a target that based in the rest of G7 countries (G6=G7-UK)	SDC
Relative size (RS)	Ratio of DV to MV	DataStream & SDC
Strong effective exchange rate (SEER)	Dummy = 1 when M&A deal is announced during period of strong Effective Exchange Rate (EER), or strong domestic currency, and = 0 otherwise	Bank of England
Stock payments (STOCK)	Dummy = 1 when the deal is financed with 100 % stock exchange	SDC
Subsidiary (SUB)	Dummy = 1 if target is subsidiary firm and = 0 otherwise	SDC
Unlisted (UNL)	Dummy = 1 if target is unlisted i.e. private or subsidiary, and = 0 otherwise	SDC
Rule of law (RL)	Rule of law is an index measuring the quality and level of law and order in a country obtained from World Bank's International Country Risk Guide (ICRG)	World Bank-ICRG
Political stability (PS)	Rule of law is an index measuring the quality and level of political stability and tensions in a country obtained from World Bank's International Country Risk Guide (ICRG)	World Bank - ICRG

The table describes and defines the variables used in the paper, as well as it indicates the data source. SDC is Thomson-Reuters SDC M&A database. With a dummy variable, a sample observation without the value of 1 has a value of 0

Appendix 2

See Table 6.

Table 6 Correlations among equity market valuations conditions (EMVCs) in G7 countries

	US	Germany	France	Australia	Canada	Japan	UK
US	1.00						
Germany	0.62	1.00					
France	0.68	0.79	1.00				
Australia	0.72	0.62	0.60	1.00			
Canada	0.68	0.60	0.54	0.79	1.00		
Japan	0.17	0.26	0.42	0.32	0.17	1.00	
UK	0.86	0.72	0.77	0.80	0.71	0.41	1.00

The table shows the correlation coefficients among the G7 countries' equity market indices. The P/E ratio is used to classify each of the equity market indices as low (depressed), neutral and high (booming), as in Bouwman et al. (2009)

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