

ANALYSIS OF CORPORATE CONTROL: CAN THE VOTING POWER INDEX OUTSHINE SHAREHOLDING SIZE?

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ABSTRACT

Shareholding size is a poor proxy for corporate control. At best it reflects an investor's wealth relative to other shareholders and, most importantly, the distribution of rights to a company's worth and the related exposure to risk. Shareholding size does not actually show an investor's strength in corporate control. As an alternative, this paper espouses the merits of the voting power concept and promotes two indices associated with it: the Penrose-Banzhaf index and the Shapley-Shubik index. This paper further introduces a new framework that compares the strength of corporate control against the size of corporate shareholding. Illustrating this idea using a group of government-linked companies (GLCs), this study yielded two possible ways in which the government can consolidate its control.

Keywords: corporate analysis, voting power, Banzhaf, Shapley-Shubik, government linked companies

INTRODUCTION

This paper begins by posing a question: in corporate analysis, how do you best measure control? As the practice stands, a researcher decides between two choices; corporate shareholding size and voting power. The former is typically used to analyse corporate control. For example, Ishak and Napier (2006), Norman, Mara and Mohamat (2009), and Ting and Lean (2011) have taken this route. Nevertheless, as this study will illustrate, the voting power concept is theoretically superior to corporate shareholding size when analysing corporate control. Studies by Crama and Leruth (2013), Chakravarty and Hodgkinson (2001) and Leech (2002) should be commended for employing the proper line of analysis.

The reason is simply because shareholding size and voting power approaches have different focuses. Shareholding size focuses on an investor's

wealth relative to other shareholders and, most importantly, on the distribution of the rights to a company's worth as well as its risks. This right can be further classified into rights to the company's assets (and liability; hence, the risk) and the right to a certain percentage of votes at the company's meeting, typically known as the shareholder's cash flow rights and voting rights, respectively (e.g., Becht & Mayer, 2001; Ishak & Napier, 2006). A distinguishing feature over the voting power approach is that this right remains exactly similar to the percentage of shareholding.

The size of shareholding¹ does not reflect the degree of shareholder control over corporate matters. In other words, a shareholder can have substantially more or substantially less corporate control than the percentage of shareholding may suggest. Consider the example of a company with three shareholders where the first shareholder owns 70% of the shares, the second shareholder owns 20% and the third shareholder owns the remaining 10% of the shares. If only shareholding size is examined, it would appear that the degree of control for each of the three investors is in proportion to the percentage of their shareholdings. This can be a confusing situation. In reality, the smallest shareholder will always lose whereas the largest shareholder will always be victorious in a corporate election. The largest shareholder controls the outcome of the annual general meeting and any emergency meetings, venues where key corporate decisions are endorsed. The smaller shareholders become powerless. Therefore, the 7:2:1 ratio does not properly reflect the true distribution of power. The true ratio in a simple majority rule system is 1:0:0.

Now consider a change in the shareholdings distribution. This time the largest shareholder owns 48% of the shares leaving the second and third shareholders each with 26% of the shares. At first glance, the largest shareholder appears to be in clear command of any voting exercise. Nevertheless, the actual power is now spread evenly; 0.5:0.5:0.5. Smaller shareholders can therefore share equal power to that of largest shareholder (later sections will explain the mechanics behind these power spreads).

Two recent news items surrounding Bursa Malaysia-listed companies, Hong Leong Capital Bhd. and MISC Bhd., are legitimate real-world voting exercises in which small shareholders had equal power to that of the larger shareholders. In these cases, the premise was that the minority shareholders were spread somewhat thinly whereas the largest shareholders owned close to 80% and 63% of the shares, respectively, and wished to de-list the companies from the bourse. Resolutions were tabled, and buyout offers of RM1.71 and RM5.30 per share, respectively, were made to entice the remaining shareholders.²

To unsuspecting eyes, the largest shareholders appeared overwhelmingly powerful and the thinly spread shareholders were powerless, until events took their course. Both of the attempts failed. This disappointment was due not least to a dispute over the offer price but also to a much bigger hurdle than that experienced in other resolutions. De-listing, as described in Chapter 16 of the Bursa Malaysia Listing Rules (Bursa Malaysia Berhad, 2001), requires more than 90% approval by the shareholders – a massive hurdle. The two companies needed a big vote of support from other shareholders, and this was not forthcoming. The attempt to take the companies private ended disastrously. The much smaller shareholders managed to scupper the de-listing move in the hopes of achieving a better offer price. The largest shareholders were forced to retreat to their next option.

The outcomes of these corporate events serve as a pointer for corporate analysis: the largest shareholders are not always winners, nor are the smaller shareholders predestined losers. The link between shareholding size and the power that comes with it remains decided by individual situations. The distribution of the former is not a true picture of the latter.

One particular concept that can precisely explain this link is known as the voting power concept – a critical technique that has been used to scrutinise the outcome of institutional votes. Nevertheless, despite its being a recognised technique, the voting power concept has not been widely understood. “Despite the importance of the field, it is a subject that is not studied widely enough, and is poorly understood outside the voting power community” (Das, 2011, p.1). In this respect, this study is expected to contribute to the existing literature on corporate analysis in three ways: first, this study introduces and illustrates the concept of voting power in relation to corporate analysis; second, it introduces a new framework for analysing corporate control; third, it provides information on the extent of government control in government-linked companies (GLCs) using the voting power concept. To the best of the authors’ knowledge, this is the first study to contribute a new analytical framework and means of determining government control over GLCs.

VOTING POWER

The voting power concept is a field within cooperative game theory. This concept has been widely used in political studies and has been used to certain extent to analyse corporate control in developed countries by researchers such as Algaba, Bilbao and Fernandez (2007), Felsenthal, Machover, Leech and List (2003), and Kauppi and Widgren (2006). Nevertheless, the concept has been overlooked by many researchers in Asia, even though this concept is simple to comprehend and

is useful for people seriously interested in finding a better technique for the analysis of corporate control.

A large part of the concept of voting power revolves around voting power indices. As the name suggests, these indices refer to the outcome of an election. From a corporate perspective, this includes the Annual General Meeting (AGM) and any Emergency General Meetings (EGMs). The results are recorded in the form of index that ranges from nil to one, representing the probability of winning an election. If the voting power of a shareholder voting is expressed as nil or '0', it indicates that the shareholder has no chance of winning a particular election. On the other hand, if a shareholder's voting power is represented as '1,' it indicates that the chance that the shareholder will win an election is absolute. In short, '0' means no control, whereas '1' means full control. A score between 0 and 1 means that control is shared between the shareholders.

Historically, the voting power index is accredited to Penrose (1946), who drew attention to an important characteristic of the concept of voting power. Penrose asserted that voting power was not directly correlated to shareholding size because these two factors are in a non-monotonic relationship with each other. Instead, voting power depends on the concept of probability. A voter's chance of winning is not based solely on the size of his shareholding but is also influenced by the distribution of the remaining shares and the winning quota or majority rule. Consequently, a striking characteristic of the concept of voting power is the non-monotonicity of the resulting index. This index can be used to explain how small shareholders can have voting power that is equal to that of larger shareholders. The following section and Table 1 describe this dynamic in greater detail.

In a company with the following share distribution: 'A' – 42.9%, 'B' – 47.2% and 'C' – 9.9% and where the winning quota is a simple majority (i.e., more than 50% of the votes), 'C' enjoys voting power equal to that of 'A' and 'B' with an index score of 0.5, even though 'C' is more than 4 times smaller than the other 2 shareholders (Table 1, Scenario 1). In the second situation, shareholder 'A' has increased his shares to 51%; consequently, the voting power of 'B' and 'C' drops to nil (Table 1, Scenario 2). Finally, if the winning quota is amended from a simple majority to super majority (more than 66.6%), 'B's' voting power reverts to 0.5 (Table 1, Situation 3).

The non-monotonicity of the voting power index emphasises the central point; it is misleading to equate corporate control with the size of share ownership. In Scenarios 1 and 3, the largest shareholders did not enjoy the greatest voting power. In fact, other shareholders have equal voting power. The

two most widely used indices, the Shapley-Shubik index and the Banzhaf index, share this attribute.

Table 1
Example-share of right and risk vs. voting power

S/ holder	Situation 1 <i>Winning quota: simple majority</i>			Situation 2 <i>Winning quota: simple majority</i>			Situation 3 <i>Winning quota: 2/3 majority</i>		
	O/ship %	Voting power ¹	Meaning of control	O/ship %	Voting Power ¹	Meaning of control	O/ship %	Voting Power ¹	Meaning of control
A	42.9	0.50	Shared	51.0	1.00	Absolute	51.0	0.50	Shared
B	47.2	0.50	Shared	39.1	0.00	Shared	39.1	0.50	Shared
C	9.9	0.50	Shared	9.9	0.00	Shared	9.9	0.00	Shared

Note: ¹ as measured using the Penrose-Banzhaf index; S/holder – shareholder; O/Ship – ownership.

The Shapley-Shubik Index

The Shapley-Shubik index (1954) remains one of the most widely used voting power indices. Conceptually, the Shapley-Shubik index measures power based on the probability of a player playing a pivotal role in all possible coalitions drawn from a pool that includes all voters. A role is seen as pivotal when the arrival of the shareholder results in the formation of a winning coalition. A shareholder whose vote results in a winning coalition is called a pivotal shareholder.

The role of shareholders in coalitions is an important assumption made by the Shapley-Shubik index (Straffin, 1977). In the context of corporate elections, this assumption is similar to assuming that each shareholder takes a voting turn and that the aggregate is tallied immediately after each turn. Shareholders who vote after a pivotal shareholder are described as dummies because the winning coalition has already been formed and their votes are essentially meaningless. Consequently, in each winning coalition, only one pivot can occur. Therefore, the total number of pivots always equals the number of coalitions, and the sum of the index always reaches unity. In the voting power fraternity, this index is known to be normalised, which is a useful feature because it permits inter-voting body comparisons. This ability eases comparisons just as results that have been transformed into percentages are easier to visualise than results displayed as absolute values.

Table 2 illustrates how each shareholder can play a pivotal role in two coalitions. Six coalitions are shown in Table 2, and the Shapley-Shubik index for each shareholder is 0.33.

Table 2
The Shapley-Shubik Index – determining pivotal shareholders

Arrivals			Pivotal shareholder
1 st	2 nd	3 rd	
A	B	C	B
A	C	B	C
B	A	C	A
B	C	A	C
C	A	B	A
C	B	A	B

Note: A – 42.9%; B – 47.2%; C – 9.9%. The majority required to win an election is set at greater than 50%.

The Penrose-Banzhaf Index

The Penrose index (1946) is another widely used voting power index. This index defines voting power as the frequency with which a shareholder is an important member or a pivotal player in the number of coalitions involving that shareholder. The idea of order or arrival (as used in Shapley-Shubik) is not used when defining a pivotal voter in this index. In other words, as long as a shareholder is needed to form a winning coalition, that time at which he arrives to vote is irrelevant. In addition, as in the Penrose-Banzhaf index, if more than one shareholder is needed to form a winning coalition, all of the shareholders are defined as important shareholders. Consequently, there can be a greater number of important members than the number of winning coalitions, leading to an index that does not always sum to unity; thus, the index stays in absolute form. In the context of a corporate election, ignoring the order of shareholder arrival is equivalent to assuming that shareholders vote simultaneously.

The Banzhaf index (1965) is closely related to the Penrose index. Although the frequency of a voter playing a pivotal role remains the same, the Penrose index defines the voting power as the number of times that a shareholder plays a pivotal role over the total number of coalitions involving that shareholder, whereas the Banzhaf index defines a pivotal role by examining the frequency of pivots over the total number of pivots. Changing the denominator of the Banzhaf index leads to results similar to those achieved using the Penrose index; hence the name, the Penrose-Banzhaf index. Because the aggregate frequency of pivotal roles remains equal to the total number of pivots, the Banzhaf index is

normalised. This normalised form of the index creates a weakness because it fails to reflect the true distribution of voting power in the same way that percentages may hide actual values (Felsenthal & Machover, 2004).

Table 3 illustrates pivotal roles. Each shareholder can be seen as being pivotal on two occasions. The Penrose-Banzhaf index gives each shareholder a pivotal role twice, and each shareholder is involved in four coalitions (i.e., 2^{n-1}). The index for each shareholder is calculated as $2/4$ or 0.50. The Banzhaf index uses the two pivotal roles played by each shareholder and their aggregate totals (i.e., six) to determine an index value of $2/6$ for ‘A’, ‘B’, and ‘C’.

Table 3
The Penrose-Banzhaf index – determining pivotal shareholders

Winning coalitions, pivotal shareholder (underlined)		
<u>A</u>	<u>B</u>	
<u>A</u>	<u>C</u>	
<u>B</u>	<u>C</u>	
C	B	A

Note: A – 42.9%; B – 47.2%; C – 9.9%. The majority required to win an election is set at greater than 50%.

Table 4 summarises the Shapley-Shubik and Banzhaf indices and the extent of control. In this example, all the voting power indices are less than one, but none are nil. None of the shareholders has absolute control, but none is powerless. Control is shared among the shareholders.

Table 4
Summary of voting power indices and the extent of control

Shareholders	Size	Shapley-Shubik	Extent of control	Penrose-Banzhaf	Extent of control
A	42.9%	0.33	Shared	0.50	Shared
B	47.2%	0.33	Shared	0.50	Shared
C	9.9%	0.33	Shared	0.50	Shared

A similarity between many studies is that the concepts are illustrated in mathematical language, resulting in an abstract discussion of the concepts involved. It is possible, however, to dispense with mathematical language, as demonstrated by Chakravarty and Hodgkinson (2001), and Felsenthal and Machover (2004). This paper adopts a similar approach by keeping the technical aspects to a minimum.

ISSUES RELATED TO THE VOTING POWER CONCEPT AND INDEX

As has been the custom with many concepts, the notion of voting power is not devoid of controversy. A review of the literature points to three main concerns: resistance to the concept, the a-priori boundary, and finally, the intuitive meanings of the index.

Voter's Behaviour

The concept of voting power has been criticised by Garrett and Tsebelis (1999; 2001) and Albert (2003) as faulty because it fails to imitate voter behaviour. To qualify as a scientific concept, voting power should be able to predict and explain human behaviour and, eventually, should be able to be used to approve or reject a theory. The voting power fraternity allegedly fails to address this matter, and the indices are therefore seen as meaningless.

One of the perceived failures of the concept of voting power is its inability to explain a voter's preference and policy arrangement. The index only considers two factors, the size of shareholdings and the winning quota, and pays no heed to the fact that voters form coalitions (Garrett & Tsebelis, 1999). Hence, political scientists and constitutional analysis researchers should disregard the voting power index (Albert, 2003). Subsequently, if one accepts this opinion, the voting power concept would have only very limited application in corporate analysis.

Contrary to the views expressed by voting power critics, Machover (2000), Leech (2003) and Felsenthal et al. (2003) defended the concept. Their central argument was based on the usefulness of the voting power concept in its a-priori form, and this form should be based on only two decision rules: a voter's size (or weight) and the winning quota. The design of the index should ignore the voter's preference in the same way that institutional constitutions ignore voters' preferences. In the context of corporate analysis, the company's constitution or charter indicates the number of votes required for a simple or super majority, regardless of the possible shareholder coalitions. In any event, human behaviour can be extremely unpredictable. A friendly shareholder can, under different circumstances, become a rival. Additionally, voting independently rather than as part of a coalition reflects sovereignty and is the basic right of every voter (Felsenthal et al., 2003). At present, a-priori formulations based on voter weight and quota are widely accepted.

Another group of sceptics argue from a social perspective. The meaning of power is more extensive and complicated than indicated by the size of a voter's shareholdings and winning quotas (Napel & Widgren, 2005). A-priori

methods, for example, should consider the significance of various employee roles in an organisation (Braham & Steffen, 2002), together with prior discussions, influence over other voters and restrictions on forming coalitions (Holler & Napel, 2004). Currently, the behavioural dimension of social behaviour in the description of a-priori has been lost (Napel & Widgren, 2005). The prospect of a final solution to this question, much like finding a solution to the philosophical debates on the meaning of ‘power’³, remains unlikely.

Rankings and Intuitive Meanings

Indices do not always produce similar rankings due to the varied assumptions entailed in the construction of each index. As an example, in a company with a limited large shareholder but an abundance of small shareholders (Straffin, 1977), an undesirable result based on two different conclusions may appear following two different rankings.

This observation encourages discussion on the merits of each index. An important discussion concerns the intuitive meaning of each index (Felsenthal & Machover, 2001; 2004). When Shapley and Shubik investigated the issue of voting power, they were concerned with the distribution of rewards, and they measured this by adapting a technique termed the Shapley value⁴ (Felsenthal & Machover, 2004). This technique was later adapted to become the Shapley-Shubik index. The concept of power, as contained within this index, refers to a reward, payoff or prize and has also been referred to as the P-Power (Felsenthal & Machover, 1998). In the Shapley-Shubik index, voting power refers to reward instead of influence. Accordingly, in studies that focus on the distribution of rewards, for example, in corporate take-overs, the Shapley-Shubik index is the best choice. Chakravarty and Hodgkinson (2001, p. 91) stated, “Winning coalitions gain rent and a player who is a pivot, turning a coalition into a winning coalition by her presence, can obtain a share of the spoils for doing so. Perceived in this way, the battle for the control of management is not a battle to monitor the behaviour of management. This index may be appropriate in studying take-over bids, which we do not investigate here”. Take-over bids are examined in Chakravarty and Hodgkinson (2001). In this context, dividend allocations, the issuance of bonus shares and the spoils from liquidation exercises can be taken as extended examples of these rewards.

In contrast, when Penrose and Banzhaf investigated voting power, the focus was on influence, termed I-Power (Felsenthal & Machover, 1998). The winner of an election can influence the policies that will affect the voting body. Accordingly, if influence is more important than reward, then the Penrose-Banzhaf index is a better choice for examining corporate control. In perspective, if the main focus of a study is reward, then the Shapley-Shubik index is a better

fit; however, if the focus is influence over a company's management, then the Banzhaf index is the appropriate choice.

The Shapley-Shubik index, however, does not distribute rewards in a convincing manner (Felsenthal & Machover, 2004). It is erroneous to assume that only pivotal members will gain rewards and that the other members in the winning coalition will receive no reward. In practice, all members of the winning coalition are rewarded, not only the pivotal members. This assumption is "[i] widespread but erroneous" (Felsenthal & Machover, 2004, p. 19).

However, Turnovec, Mercik and Mazurkiewicz (2004) rejected the argument that the Shapley-Shubik index reflects P-Power and call on its supporters to justify the distribution of rewards. The detractors note that the index can also be defined from the perspective of probability, and there is little need to justify this meaning and distribution. It is a matter of probability that a voter will be in pivotal situation whilst in the "process of forming a winning configuration" (Turnovec et al., 2004, p. 5). This index has been successfully used by researchers such as Eckbo and Verma (1993), and Kauppi and Widgren (2004). In some studies, both the Banzhaf and Shapley-Shubik indices were tested for correlation (e.g., Chen [2004]).

Equally, the idea of intuitive meaning has also received support. The meanings of the indices have been discussed, and the concept of I-Power and the Banzhaf index in absolute form are accepted as appropriate by Chakravarty and Hodgkinson (2001) and Algaba et al. (2007). On the other hand, Kauppi and Widgren (2004) preferred the Shapley-Shubik index because the underlying meanings best reflected the subject of their studies.

While not denying that the ideas behind voting power indices originate from probability concepts, this study agrees with the idea that these indices reflect particular underlying meanings. For that reason, if the purpose of voting in an election is to demonstrate influence over a company's policies, then the Banzhaf index is the most appropriate. This study also concurs with the claim that the Banzhaf index, given that it is normalised by definition, hides voting power distribution and that the Penrose-Banzhaf index is more appropriate for analysing corporate control.

CORPORATE CONTROL OF GOVERNMENT-LINKED COMPANIES

This study illustrates the application of the voting power concept to publicly listed Malaysian GLCs. GLCs were chosen because the issues they face command public attention and are highly politicised. For example, GLCs have

been accused of representing the interests of the Bumiputera (Centre for Public Policy Studies, 2006). The board of GLCs appear to predominantly comprise members from the Bumiputera community. GLCs have also been accused of being retirement funds for retired senior politicians and civil servants.⁵ Questions have been raised regarding the qualifications and experience of politician and civil servants in undertaking these important responsibilities. GLCs are also highly politicised because the public perceives the performance of GLCs as abysmal compared to their competitors. Some popular examples include companies such as Proton Holdings Bhd. and Malaysian Airlines System Bhd.⁶ The situation is exacerbated by the size and the popularity of these companies. The scientific findings, however, are mixed. The performance of GLCs is worse than the performance of competing non-GLCs (Abdul Razak, Rubi, & Joher, 2011). However, reducing direct government involvement, as recently announced by the Performance Management and Delivery Unit (PEMANDU)⁷ of the Government of Malaysia, might not be the solution. In fact, the value of a GLC increases with the size of government involvement (Lau & Tong, 2008). If the plan to reduce the amount of shares held in GLCs by the Malaysian government goes through, the pre and post-performance of these companies will become important for understanding the merits of government intervention. Against this backdrop, this study adds to the existing literature on GLCs, albeit centred towards the methodological perspective.

All 12 GLCs listed on the Malaysian Stock market in 2010 were analysed. Shareholding size was determined by examining all shareholdings greater than 1% held by the 30 largest shareholders that were available in the company's annual report. These shareholders were categorised as belonging to the government of Malaysia, the Bumiputera, other Malaysians and international investors. In this study, all institutional Bumiputera shareholders were categorised as a single group for practical analysis. The corporate shareholding size of each shareholder was then used to calculate the Penrose-Banzhaf index.

This study concurs with Felsenthal and Machover (2001) in that distinctive meaning underlies each index. This study, therefore, adopts the Penrose-Banzhaf index as it best reflects the meaning of power being analysed (in this case, influence over the direction of the company). The alternative approach – which the researchers have chosen not to embrace – is to ignore this concept of meaning consistent with Turnovec et al. (2004). If the concept of meaning is disregarded, either one or both indices can be employed concurrently. Regarding the use of Penrose-Banzhaf index and Shapley-Shubik index, a study may want to test the correlation between the two sets of outcomes, similar to the study undertaken by Chen (2004), in which a high correlation coefficient was observed. This study adopts the opposite approach, in that it employs only a

single index; hence the result is a single set of rankings. The need to test for any correlation thus disappears.

Moving to the outcome of the analysis, a full description of the voting power and the corresponding control of the GLCs is listed in Table 5. The analysis serves two aspects of the study: it illustrates the voting power concept and aids in understanding the control of GLCs. The illustration reveals that the size of ownership is not an ideal reflection of control. In GLC 4, the smaller Bumiputera shareholder has a voting power equal to that of the larger shareholders. In GLC 9, the much smaller Bumiputera shareholder has only a 5.2% share but has a voting power almost equal to that of the government, whose shareholding size was almost 8 times larger. In other words, despite their size, these small shareholders have an equal ability to influence the agenda of the relevant GLC as the larger shareholders. Shareholding size is seen as a fragile proxy for corporate control; the voting power index is a superior choice.

From the perspective of GLC studies, the basic discovery is that government operational control strength varies. Seventy-five percent (i.e., 9) were under full governmental control, whereas 25% (i.e., 3) were under a shared form of control. This means that the government (as the largest shareholder) does not necessarily have a free hand in the running of a GLC. In some instances, the government needs help from minority shareholders to exceed the majority voting requirement. This support is vital for the government. To put it the other way, this implies the reality that other shareholders can deny the government's wishes.

This finding leads to another question; what forms of remedies are available for the government to ease this lack of total operational control in the three companies? Table 5 hints at the answers. The first form of possible remedy is to act through a friendly party. By teaming up with a friendly party with significant stakes, the total size of shareholding is technically increased, hence safeguarding the company's operation from dissenting groups. This appears to be the remedy adopted by two of the companies. The second largest shareholders in these companies, the Bumiputera, are known to have close relationships with the government (see Centre for Public Policy Studies, 2006). In a separate matter, the Bumiputera are the 2nd-largest shareholder in 8 of the 12 GLCs that enjoy full operational control, thus allowing the government to consolidate greater control over these companies. In essence, a permanent pact with a friendly party appears to be one of the ways to ease this lack of total control, and the friendly party is the Bumiputera.

Table 5
GLCs: Shareholding size, voting power index (the Penrose-Banzhaf index) and control

Company	Major shareholder	Shareholding size %	Voting power	Extent of control	Number of influential minorities
1. Telekom Malaysia Bhd.	Government	53.3	1.00	Full	0
	Bumiputra	17.1	0.00	None	
	Non-Bumiputra 1	2.6	0.00	None	
2. Axiata Group Bhd.	Government	54.4	1.00	Full	0
	Bumiputra	8.0	0.00	None	
	Non-Bumiputra 1	2.2	0.00	None	
3. CIMB Group Bhd.	Government	44.1	0.59	Shared	5
	Foreign 1	4.6	0.28	Shared	
	Foreign 2	4.1	0.22	Shared	
	Foreign 3	1.9	0.16	Shared	
	Foreign 4	1.5	0.09	Shared	
	Foreign 5	1.3	0.03	Shared	
4. Faber Group Bhd.	Government	34.3	0.5	Shared	1
	Bumiputra	22.7	0.5	Shared	
	Non-Bumiputra 1	7.0	0.0	None	
	Foreign	1.4	0.0	None	
5. Malaysian Airline System Bhd.	Government	83.7	1.0	Full	0
	Bumiputra	1.3	0.0	None	
6. Malaysia Airports Holding Bhd.	Government	63.6	1.0	Full	0
	Bumiputra	6.8	0.0	None	
	Foreign	4.0	0.0	None	
	Non-Bumiputra 1	1.9	0.0	None	
7. Pharmaniaga Bhd.	Government	87.4	1.00	Full	0
	Bumiputra	8.0	0.00	None	

(continued on next page)

Table 5 (continued)

Company	Major Shareholder	Share-holding size %	Voting Power	Extent of control	Number of influential minorities
8. PLUS Expressway	Government	70.5	1.0	Full	0
	Bumiputra	6.5	0.0	None	
9. Pos Malaysia Bhd.	Government	44.9	0.56	Shared	4
	Bumiputra	5.2	0.44	Shared	
	Foreign	2.9	0.06	Shared	
	Non-Bumiputra 1	1.3	0.06	Shared	
	Foreign 2	1.2	0.06	Shared	
10. Proton Holdings Bhd.	Government	70.0	1.0	Full	0
	Non-Bumiputra	5.0	0.0	None	
	Foreign 1	1.6	0.0	None	
11. Time dotcom Bhd.	Government	62.2	1.0	Full	0
	Non-Bumiputra 1	6.8	0.0	None	
	Foreign	1.4	0.0	None	
12. UEM Land Holdings Bhd.	Government	72.7	1.0	Full	0
	Foreign	2.5	0.0	None	

Note: The extent of control in bold highlights influential minority shareholders.

The other possible remedy available to the government is based on the natural state of scattered small shareholders. Although the previous form of control may be unsurprising and may be part of a strategic plan (i.e., it is not coincidental that the Bumiputera are the 2nd largest shareholders), the scenarios involving dispersed shareholders are less apparent. Typically, dispersed shareholders find it difficult to cooperate due to various factors such as the usual issues of free-riding by other shareholders, the prohibitive cost of gathering and analysing information, especially regarding the non-institutional investors, and the availability of cheaper and faster options to exit the companies, namely trading-off the shares on the bourse (see Forbes & Watson, 1993). These factors complicate efforts to form a dissenting and informed voting bloc.

This complication is likely to be more pressing in respect of GLC 3 and GLC 9 because they have more minority shareholders that are able to influence the outcome of the voting exercise than GLC 4, as evidenced by the presence of voting power. Precisely, as many as five and four minority shareholders have the ability to influence the outcome of the voting exercise in GLC 3 and GLC 9, respectively (Table 5, Column 6). In contrast, only one minority shareholder has this ability in GLC 4, despite one of the remaining minority shareholders having as much as 7% of the shares in the company (Table 5, Column 6). Articulation among the minority gets more tedious when the number of shareholders increases. Consider the following scenario: a shareholder in a GLC with a single minority shareholder has only herself in a coalition. A GLC with 4 minority shareholders has 8 possible coalitions (i.e., $2^n - 1$, where n is the number of minority shareholders) to choose from, whereas a GLC with 5 minority shareholders has 16 possible coalitions to consider. These minority shareholders are disenfranchised by the circumstances to the benefit of the government.

In short, the strength of control in GLCs varies and, for those GLCs that lack full operational control, the distribution of shareholders first hinted at the existence of a pact between friendly minority shareholders, and second, hinted at the natural consequence of dispersed shareholders as solutions. It is perhaps worth repeating that the Bumiputera is unsurprisingly the 2nd largest shareholder in most GLCs. The dispersed state of ownership among the minority shareholders is less obvious as a likely form of control.

Returning to the discussion of voting power, detailed analyses of GLCs will be less accurate and potentially misleading without the use of the voting power concept. The application of this concept allows a researcher to objectively analyse the strength of control for both the government and minority shareholders.

DISCUSSIONS AND CONCLUSIONS

At the beginning of this paper the following question was posed: how do you best measure corporate control? Much effort has been taken to explain the superiority of the voting power concept over shareholding size. The crucial point is the difference in focus between the shareholding size and control approaches. These approaches are related but focus on two different issues. The former provides us with certain information on a shareholder's slice of wealth and the related rights and risk but will not necessarily provide information on whether that shareholder has control over a company. The best approach to measure corporate control is through the concept of voting power.

Accordingly, this study attempts to promote the wider application of this concept. The explanations and considerations that come into play when analysing corporate control have been presented. The Penrose-Banzhaf index remains the most appropriate index when studying corporate influence because this index clearly reflects this influence. Alternatively, the Shapley-Shubik index is suitable if the focus of a corporate election is to share the spoils of the company, such as when issuing dividends and or bonus shares.

An analysis framework has been developed to facilitate the application of the voting power concept. GLCs were analysed to illustrate this framework, and the results highlighted the different control strengths within the GLCs. The analysis can be weakened if a study groups all GLCs into one group when in reality, some companies require the help of other shareholders to sanction a decision. The “linked” as meant in the term GLCs, varies.

Critics may argue that the voting power concept fails to account for all factors. In the GLC scenarios used in his study, a claim can be made that “golden shares” may influence the state of control, and this is not considered in the voting power concept. Additionally, authorities can assert control over companies through various means from the issuing of licenses to imposing trade restrictions. Voting power allegedly fails to reflect such factors. This claim is unfounded for many reasons, the chief of which is that the entire analysis should be based on an a-priori assumption; i.e., the analysis should only focus on the size of shareholdings and majority rules (Felsenthal et al., 2003). Only these two factors can be precisely identified, and it is often difficult to determine other factors. Additionally, these other factors can be difficult to count and might be constantly changing. It is wiser for the analysis to be restricted to reliable factors and for other factors to be ignored. The fact that a company’s constitution often ignores factors such as the ability to form coalitions, age, gender, preferences and ethnicity, and only focuses on the quota needed to pass a resolution speaks for itself. Consider GLCs; it is true that the government can exercise their power through various means. However, these actions may be counterproductive to the entrepreneurial spirit and investor confidence. Government attempts to control a company are limited. At times, other shareholders (such as foreign investors) may exert greater control than the government, especially when they provide highly sought after technology and much-needed capital. Clearly, the factors that influence corporate control can appear limitless and difficult to predict. The only factors that are reliable for use in an analysis are the size of shareholding and the rules governing the required majority.

Nevertheless, despite the theoretical superiority of the voting power concept over shareholding size, not every study on corporate control should discard shareholding size as an analysis technique. Shareholding size is, after all,

simple and practical. For example, exceeding a threshold of 30% ownership triggers mandatory takeover bids of listed companies in many countries. This approach is practical because the predetermined number is easy for investors to understand. The drawback is that it does not necessarily reflect the strength of corporate control. To resolve this issue, a study can employ the voting power concept in tandem with corporate shareholding size. For example, in the study of a GLC by Ting and Lean (2011), the use of this concept allowed researchers to explore the link between corporate control strength and debt structure. The present study proved that government influence on GLCs is present at various degrees. Similarly, the study by Norman et al. (2009) can be enriched by analysing the strength of control exhibited by each category of ownership.

This study is a precursor, hopefully, to the greater application of the voting power concept in corporate analysis and focused on establishing the strength of the voting power concept. GLCs were chosen to illustrate the varying strengths of control and the possible ways in which the government managed to retain control; namely, the use of friendly partners and dispersed minority shareholders. Limitations are unavoidable. For example, how do non-GLCs, which can be equally controversial, compare against GLCs? This study indicates that members of the Bumiputera group are the main coalition partners of GLCs. Is a similar trend exhibited by non-GLCs? Are non-GLCs less reliant on partners to retain corporate control? Is a similar incidence of disenfranchised shareholders a nationwide phenomenon and to what extent is this true?

Ultimately, after the voting power concept has gained traction as a viable method of analysis, the relationship between the relevant indices and a host of other variables, such as capital structure, performance, investments and dividend policy is open for investigation.

To this end, the differences between the voting power concept and the size of shareholding ownership have been discussed. Now the question is; can voting power outperform shareholding size? We believe the answer is a resounding “yes!” However, if disagreements persist, at the very least, the schisms should be acknowledged.

NOTES

1. The size of shareholdings is also the basis of the Herfindahl index – an index that is defined as the sum of the squared percentage of shareholding; e.g., in a company with 4 shareholders of 40, 20, 20 and 20 percent, respectively, the index, i.e., $h = (1 \times 0.4^2) + (3 \times 0.2^2) = 0.28$. The median of this index indicates the degree of concentration and is used for cross-industry or cross-country analyses. This index is widely applied. Examples include Chakravarty, Goddard and Hodgkinson (2004), who illustrate how the

distribution of block holders and the rate of shareholders participation complicate corporate voting outcome and Van der Elst (2004), who describes the behaviour among selected European countries where company-specific characteristics such as identity of the largest shareholders was concluded as likely to influence rent-seeking behaviour.

2. See Jayaseelan, R. (2013). *Fear factor often used in buyout exercises*. Retrieved 22 July 2013 from <http://archives.thestar.com.my/services/printerfriendly.asp?file=/2013/2/14/business/12709847.asp&sec=business> and The Star. (2013). *Petronas offers to take MISC private*. Retrieved 22 July 2013 from <http://www.thestar.com.my/Business/Business-News/2013/02/01/Petronas-offers-to-take-MISC-private-in-RM88billion-deal.aspx>
3. For example, Morriss (2002) defines power as ‘the ability to do something’ against power ‘over something’, as advocated by Oppenheim (1978).
4. When each shareholder has equal weight, the application of this definition would produce an exact result. This is known as the Shapley value. The Shapley-Shubik index is a special kind of index because of the unequal weight.
5. BERNAMA. (2011). *PM: Appointment of GLC heads based on competence*. Retrieved 9 February 2011 from <http://thestar.com.my/news/story.asp?file=/2011/2/9/nation/20110209175312&sec=nation>
6. E.g., Leong, H. Y. (2011). *Analysts downgrade Malaysia Airlines*. Retrieved 27 May 2011 from <http://biz.thestar.com.my/news/story.asp?file=/2011/5/27/business/8768319>
7. PEMANDU. (2011). *Corporate Malaysia holds court*. Retrieved 13 January 2012 from http://etp.pemandu.gov.my/News_-%E2%97%98-Events-@-Corporate_Malaysia_holds_court.aspx

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