



A value assessment of mergers and acquisitions in the South African mining industry—the Harmony ARMgold example

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Synopsis

A value assessment model which uses deal objectives, financial and non-financial indicators as a guide to assess value creation in mergers and acquisitions. The extent to which post-merger deal objectives are achieved and the potential benefits derived from mining deals that may not necessarily be financial of nature, but which are necessary to sustain and enhance future performance, were considered. The pre-merger and post-merger performances based on some financial indicators that reflect profitability for shareholders were also used.

This value assessment model was used to assess four major deals that have occurred in the South African mining industry since 2003 as part of a postgraduate dissertation. In this paper, the Harmony and ARMgold merger is used as an example of how the model can be applied. The model's relevance and applicability can also serve as a guideline in developing a framework or holistic guideline in assessing whether mining BEE deals in South Africa create value.

Keywords

mining deals, mergers and acquisitions, value creation, holistic value assessment model, deal objectives, financial indicators, non-financial indicators.

Problem definition

The global mining industry experienced an unprecedented period of change between 2005 and 2008, driven by mergers and acquisitions activities which ran at record highs at all levels of the sector¹. Metals became the new green on Wall Street, as mining displaced financial services to become the biggest source of mergers and acquisitions².

This was driven mainly by growing commodity demand from Asia, which led to record commodity prices. Mining companies therefore positioned themselves to gain bigger economies of scale and diversification. The enactment of the Minerals and Petroleum Resources Development (MPRDA) Act of 2002 in South Africa also led to some mergers and acquisitions. Despite this growing trend, various studies conducted indicate mixed outcomes on whether mergers and acquisitions do create value. The basis for assessing value creation in mergers and acquisitions, however, often tend to differ in approach, data used and timing.

Mining mergers and acquisitions are often associated with huge financial deals. The global value of mergers and acquisitions in the mining sector was US\$134 billion in 2006, US\$159 billion in 2007 and US\$153 billion in 2008 according to the 2008 Annual Review of Mining Deals report by PriceWaterhouse Coopers.

Total mergers and acquisitions in South Africa were R284 billion (about US\$45 billion) in 2006 and R514 billion (about US\$73 billion) in 2007. Total Black Economic Empowerment (BEE) transactions amounted to R56 billion (about US\$9 billion) in 2006 and R96 billion (about US\$14 billion) in 2007. In 2006, mining mergers and acquisitions made the biggest contribution to empowerment deals in South Africa³.

Despite the huge financial investments involved, various studies have revealed mixed outcomes on whether or not mergers and acquisitions do create value. Post-merger and acquisition studies conducted by several authors indicated that the majority of mergers and acquisitions underperform industry average performance⁴. There are however various interpretations on what constitutes value and how and when it is measured.

For mining companies in South Africa to remain significant and competitive, mergers and acquisitions are bound to occur in order to comply with legislation and create benefits through financial and operational synergy, diversification, etc. For the industry to achieve these business objectives, it is critical that the impacts of mergers and acquisitions on the South African mining industry are well understood and managed.

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The development of a model for a holistic assessment of value creation in mergers and acquisitions that is suitable and applicable to the South African mining industry will therefore assist in clarifying whether deals create value or not.

Motivations for mergers and acquisitions

There are numerous reasons why mergers and acquisitions take place. Some of the common ones include⁴⁻⁷:

- Synergy (operational and financial)
- Diversification
- Strategic re-alignment
- Market power
- Hubris and managerialism
- Buying undervalued assets (Q-ratio)
- Tax considerations
- Legal and regulatory framework
- Mis-evaluation
- Mismanagement (agency problems)
- Stakeholder expropriation.

The motive behind a merger or an acquisition is very important, since it offers clarity of purpose and focus throughout the process of target acquisition, deal valuation, and post-merger integration. It also assists in clarifying non-financial benefits and threats to the merger objectives.

The process of post-merger integration is probably by far one of the most important steps in any deal process. When companies merge, they not only merge income statements, balance sheets, and cash flows. They also merge cultures, systems, and processes which could often take long to integrate.

The merger and acquisition process

Mergers and acquisitions are never events, but processes that take a life span of their own depending on the degree and success of post-merger integration. The success of the process therefore depends on focussing on all the key steps and managing them appropriately.

The key steps in the merger and acquisition process consist of⁴:

- *Phase 1*—develop a strategic plan
- *Phase 2*—develop an acquisition plan that supports the business plan
- *Phase 3*—actively search for acquisition candidates
- *Phase 4*—screen and prioritize potential candidates
- *Phase 5*—initiate contact with target
- *Phase 6*—refine valuation, structure deal, perform due diligence, and develop financing plan
- *Phase 7*—develop an integration plan
- *Phase 8*—obtain all necessary approvals, resolve post-closing issues, and implement closure
- *Phase 9*—implement post-closing integration
- *Phase 10*—conduct post-closing evaluation of the acquisition.

Analysis of global mining deals

Global mining merger and acquisition activities have increased both as regards the number of deals and the average deal values. As can be seen from Table I, the period between 2005 and 2007 witnessed huge increase in mergers

and acquisitions, while activity remained fairly constant in 2008. The trend is similar for South Africa and the rest of Africa.

Base metals experienced the most merger and acquisition activity, and ferrous with the fastest growing trend from 2005 to 2008, as shown in Figure 1.

The role of mining in the national economy of South Africa

In 2007, mining's contribution was R135.6 billion which accounted for 7.7% of the gross domestic product (GDP) of South Africa. Mining also contributed to 8.9% of the total fixed capital formation (TFCF). The total contribution of mining to state revenue was R18.5 billion in 2007⁸.

As can be seen from Figure 2, there was a sharp decline in TFCF from 2002 when the MPRDA was published which could, amongst other factors, be attributed to fear and

Table I

The figures in parenthesis show the year-on-year changes 2005–2008

	2005	2006	2007	2008
Total number of deals	762	1026 (+35%)	1732 (+69%)	1668 (-4%)
Total value of deals (US\$ billion)	69.8	133.9 (+92%)	158.9 (+18%)	153.4 (-4%)
Average deal value (US\$ million)	125.6	196.6 (+58%)	137.5 (-30%)	124.0 (-11%)

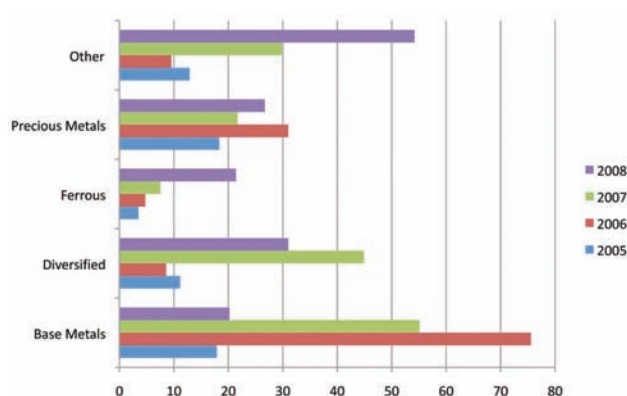


Figure 1—Deal value classification by commodity type

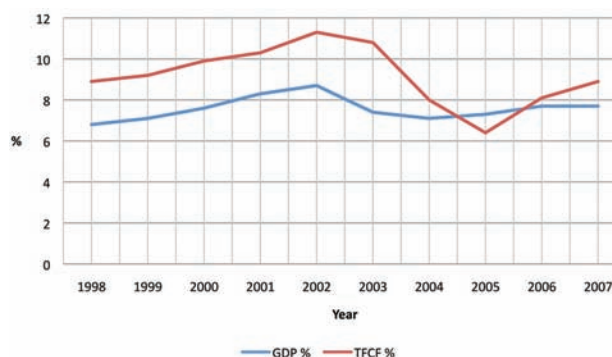


Figure 2—Mining's contribution to GDP and TFCF in South Africa

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uncertainty amongst mining companies and investors. However, the situation has improved since 2005 as clarity and acceptance improved, and also due to rising commodity prices. Mining also accounts for a substantial portion of exports, amounting to R536 billion in 2007, up from R160 billion in 1998.

The Mining Charter

The Mining Charter was gazetted under the MPRDA with the vision of achieving a globally competitive mining industry for the benefit of all South Africans and to 'create an industry that will proudly reflect the promise of a non-racial South Africa'.

The objectives of the Charter are to:

- Promote equitable access to the mineral resources to all the people of South Africa
- Substantially and meaningfully expand opportunities for historically disadvantaged South Africans (HDSAs) to enter the mining and minerals industry and to benefit from the exploitation of the nation's mineral resources
- Utilize and expand on the existing skills base of HDSAs
- Promote employment and advance the social and economic welfare of mining communities and the major labour-supplying areas
- Promote beneficiation of South Africa's mineral commodities.

The key outcomes, which are set out in a scorecard, include the following:

- Achieving HDSA participation of 15% in ownership and joint ventures within 5 years (by 2009) and 26% within 10 years (by 2014)
- Achieving 40% HDSA participation in management within 5 years (by 2009)
- Achieving 10% women in mining within 5 years (by 2009)
- Non-discrimination against migrant labour
- Improvement in the standard of housing conditions for lower level employees
- Commitment to preferential procurement from BEE companies
- Human resource development, with focus on improving literacy levels of mineworkers
- Meaningful contribution to communities in which the industry operate
- Improvement in the level of beneficiation of mineral commodities.

The scorecard is designed to facilitate the application of the Charter in terms of the MPRDA requirements for the conversion of 'old order mining rights' into new rights within a five year period (by 2009), but recognizing the full 10 year period (by 2014).

Compliance to the requirements of the MPDRA and Mining Charter is therefore a prerequisite to securing and maintain mining and mineral rights as well as conducting mining operations in South Africa.

The enactment of the MPRDA has therefore to some extent created an environment that will contribute to significant acquisition and merger activity in the South African mining industry.

Mergers and acquisitions trends in South Africa

Mergers and acquisitions in South Africa in general have increased dramatically since 1995, due to the removal of economic sanctions and the inclusion of South Africa in the global economic framework. Following the enactment of the BEE Act in 2003, there has been a marked increase in BEE deals. Figures 3 and Figure 4 show the total merger and acquisition value and the BEE contribution between 1995 and 2007.

It can be seen that activity increased from 1995 to 2001, decreased from 2002 to 2004 when there was uncertainty around BEE deals, and increased again from 2004 to 2007.

The period after 2002 showed a remarkable increase in BEE deals and the mining sector made a significant contribution to these deals.

An Empowerdex report in 2006⁹ indicated that the resources sector average, which comprised 34 JSE-listed mining companies, achieved a 38.8% BEE score compared to the JSE average of 49.34%, which was made up of the following proportions:

- a) Ownership score of 13.2%
- b) Management score of 2.81%
- c) Employment equity score of 1.01%
- d) Skills development score of 11.4%
- e) Preferential procurement score of 2.75%
- f) Enterprise development score of 1.49%
- g) Residual element score of 5.89%.

This reveals that ownership is one of the key elements that the mining companies in South Africa used to achieve their BEE score, and this would therefore impact on the

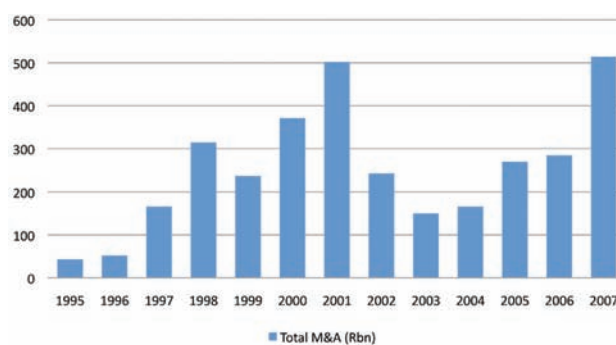


Figure 3—Total merger and acquisition value in South Africa

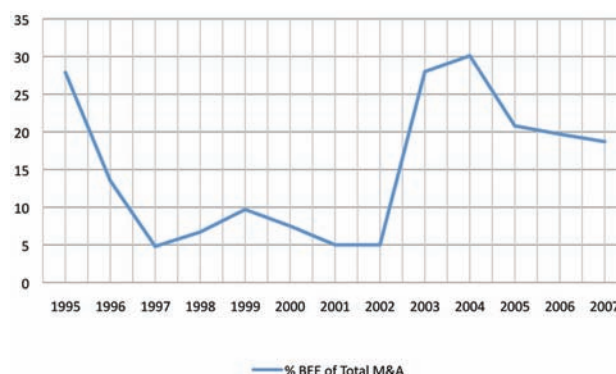


Figure 4—BEE contribution to mergers and acquisitions in South Africa

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merger and acquisition structure of the industry. The BEE score technically does not apply to the mining industry, but allows for comparison with other sectors.

Further analysis of the report of the type of BEE ownership transaction reveals that majority of the transactions were made to secure between 10–25% and 25–50% ownership, reflecting the Mining Charter scorecard requirements of 15% by 2009 and 26% by 2012. Most BEE deals in the mining sector are therefore likely to fall in those ranges, as shown in Figure 5.

Merger and acquisition trends in the South African mining industry

The period between 2003 and 2008 was used due to availability of reliable data. The post 2003 period shows a lot of merger and acquisition activity, partly due to the enactment of the MPRDA. The database used for this analysis was privately sourced from Dealogic, and is therefore not available in the public domain.

During the period of 2003 to 2008, about 130 deals took place, in platinum, gold, and coal. In terms of deal volume, platinum accounted for 27%, coal 22%, and gold 22%. Deals averaged about 15–20 per year between 2003 and 2005, and about 20–30 per year between 2006 and 2008. The increase in deal activity since 2006 could be attributed to record commodity prices in gold, coal, and platinum, which enhanced the financial position of most mining companies and also made it easier for entry of many junior mining companies.

A deal summary, in terms of total deals per year, number of deals per year, and average deal value is shown in Table II.

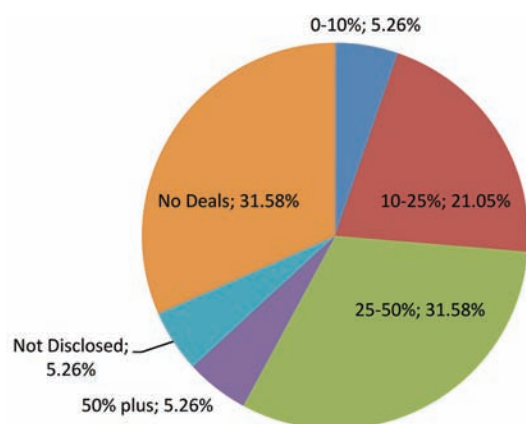


Figure 5—Distribution of ownership types in mining BEE Deals

Year	Deal volume	Deal value (\$ m)	Average deal value (\$ m)
2003	18	5,289.30	293.85
2004	15	2,070.88	138.06
2005	20	1,543.27	77.16
2006	21	5,660.51	269.55
2007	30	4,974.51	165.82
2008	25	2,346.44	93.86

Gold, platinum, and coal accounted for most of the deals both in volume and in value. These are commodities with a huge resource base and historically favourable prices that have sustained and grown those sectors of the mining industry. Figure 6 shows the percentage contribution of various commodities to the total number of mining deals from 2003 to 2008.

Figure 7 expresses the contribution of each commodity to the total number of deals annually. The contribution per commodity in terms of deal value shows a similar trend. Gold, platinum, and coal are the key contributors to increased merger and acquisition activity in the South African mining industry.

Table III summarizes some of the key deals that have occurred in the South African mining industry between 2003 and 2008. The date used is based on announcement dates, and the figures were sourced from Dealogic.

Value assessment criteria for mergers and acquisitions

Several authors have discussed whether mergers and acquisitions create value for shareholders of the acquiring company with various conclusions⁴. The post-merger period used was from 3–5 years. The study also concluded that acquirers do not often make the same returns as the target, with most of the target shareholders' returns made around announcement dates.

We can define three possible outcomes for mergers and acquisitions⁶ as follows:

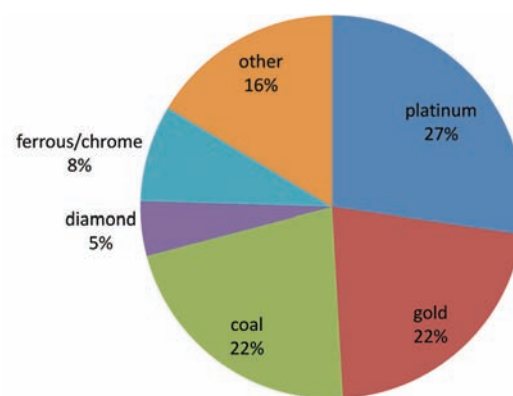


Figure 6—Contribution of various mineral commodities to total number of deals

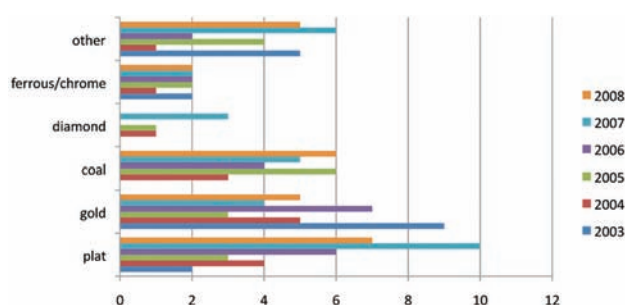


Figure 7—Number of deals per commodity

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Table III

South African key mining deals summary from 2003 to 2008

Year	Value (\$ m)	Deal description	Commodity	Remarks
2008	323.735	Annoraq Resources acquire 51% of Lebowa Platinum Mines	Platinum	BEE motivated, public listed companies
2008	252.000	Pamodzi Gold acquires Cooke Section of Harmony Randfontein Ops	Gold	BEE motivated, public listed companies
2007	147.097	Petra Diamonds acquire Cullinan Diamond Mine from De Beers	Diamond	BEE motivated, public listed companies
2007	432.500	ArcelorMittal SA acquire 50% of Kalagadi Manganese (Pty) Ltd	Manganese	Non-BEE motivated, Kalagadi a private co.
2007	761.620	Northam Platinum acquire Booysendal project from Anglo Platinum	Platinum	BEE motivated, public listed companies
2007	1 056.037	XStrata plc acquires Eland Platinum Holdings	Platinum	Non-BEE motivated, public listed companies
2007	263.237	Inyosi Consortium acquire 27% of Anglo Inyosi Coal	Coal	BEE motivated, Inyosi privately owned
2006	1 525.000	Gold Fields acquisition of Barrick Gold SA	Gold	Non-BEE motivated, public listed companies
2006	753.777	Gold Fields acquisition of 82% of Western Areas Ltd	Gold	Non-BEE motivated, public listed companies
2006	294.245	Harmony Gold acquisition of 29.2% of Western Areas Ltd	Gold	Non-BEE motivated, public listed companies
2005	2 441.538 (R16 bn)	Merger between coal and mineral sands assets of Kumba Resources and Eyesizwe Coal to form Exxaro	Coal and mineral sands	BEE motivated, public listed companies
2005	119.277	Incwala Resources acquire 23% of Mvelaphanda Resources	Platinum and gold	Non-BEE motivated, public listed?
2005	562.938	Ponahalo Holdings Ltd acquire 26% of De Beers Consolidated Mines Ltd	Diamond	BEE motivated, Ponahalo private co.
2004	1 244.908	Norilsk Nickel acquisition of 20% of Gold Fields	Gold	Non-BEE motivated, public listed companies
2003	1 678.002	Merger between Harmony, ARMgold and acquisition of Avmin assets to form Harmony in its current state	Gold	BEE motivated, public listed companies
2003	505.091	Anglo plc acquires 31.6% of Kumba Resources Ltd	Iron ore, coal and mineral sands	Non-BEE motivated, public listed companies
2003	1 538.767	Mergers between Ashanti Gold Fields and AngloGold Ltd to create AngloGold Ashanti	Gold	Non-BEE motivated, public listed companies
2003	520.629	Mvelaphanda Resources acquires 10% of Gold Fields	Gold	BEE motivated, public listed companies

Table IV

Class of tests of merger and acquisition profitability

Test	Structure: M&A pays if	Description and comments
Weak form	$P_{\text{after}} > P_{\text{before}}$	Does firm's share price (P) improve after the deal? A comparison widely used by consultants and journalists
Semi-strong form	$\%R_{\text{m\&a firm}} > \%R_{\text{benchmark}}$	Does the return (R) on the firm's shares exceed that of a benchmark? Widely used by academic researchers. Depends on the integrity of the benchmark selection and large samples of observation
Strong form	$\%R_{\text{firm with m\&a}} > \%R_{\text{firm without m\&a}}$	Does the return (R) on the firm's shares exceed what it would have been without the deal? The 'gold standard' test but not practical

- *Value conserved*—investment returns equal required returns. The investor obtained the returns that were expected prior to the deal
- *Value created*—investment returns exceeded the required returns. The investor received more than what was expected prior to the deal
- *Value destroyed*—investment returns less than required returns. The investor received less than what was expected prior to the deal.

The issue here, though, is whether the value expected by the investors can be considered fair relative to what the market expects.

The profitability of mergers and acquisition should be measured against a benchmark⁶, in which case three classes or tests of profitability can be applied:

- Weak form, which compares share price movements prior to and after the deal
- Semi-strong form, which compares the performance of

the combined companies' shares, to an industry benchmark

- Strong form, which compares the share performance of the merged company to that of the separate companies without a merger.

Table IV summarizes that work, and though the strong form would have been the preferred criterion, it cannot be measured and can only be based on assumptions.

There are four research approaches to determining the profitability of mergers and acquisitions⁶, namely:

- Event studies, which examine the abnormal returns to shareholders in the period surrounding the announcement of a transaction
- Accounting studies, which examine reported financial statements before and after the deal, and consider accounting measures like net income, return on equity or assets, earnings per share, leverage, and liquidity of the firm

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- Survey of executives, which considers the views of managers whether an acquisition did create value or not
- Clinical studies, which focus on an in-depth analysis of a particular transaction or few transactions.

The work of other authors on the analysis of previous deals⁶ indicates the following:

- Target firms enjoy returns that are significantly and materially positive from event studies evidence
- Market-based returns analysis gives mixed conclusions on whether value was created or not
- The combined company returns are positive, and indicate that acquirers also benefit.

The boom of 2003 to 2006 created more value compared to the previous boom (1997 to 2000), indicate that acquirers were getting more out of it¹⁰. The two key measures that were used to arrive at this conclusion are the deal value added (DVA) and the proportion of companies overpaying (POP).

This research was based on 1 000 global mergers and acquisitions from 1997 to 2006, comparing the share price two days before and two days after announcement of the deal in order to assess the financial market's initial reaction to the deals. It also reiterates the outcome of other research work that indicates that there is a positive correlation between the so-called 'announcement effect' and long-term value creation.

First, the deal value added (DVA) tracks the financial market's assessment of how much total value a deal will create. DVA measures the aggregate value change at the time of announcement across both companies as a percentage of a transaction's value (adjusted for market movements).

The second index, the proportion of companies overpaying (POP), examines the success of acquirers in capturing value from deals by measuring the proportion of all transactions in which the initial share price reaction for the acquirer was negative, indicating that the acquirer overpaid (adjusted for market movements). In other words, POP represents the proportion of acquirers that the market perceives to have transferred to the sellers more than 100 per cent of the value created in the deal.

The study concludes that:

- The average DVA has been 6.1%, trending from 2.1% in 2003 to 10.6% in 2006
- The POP has decreased from 63% in 2003 to 56% in 2006, indicating that average deal premiums are reducing considerably and acquirers are keeping more of the value.

Figure 8 shows the DVA from 1997 to 2006, and Figure 9 is the POP from 1997 to 2006.

The proportion overpaid seems to be fairly constant, ranging between 50% to 60% in most cases.

Financial and non-financial metrics

The financial metrics for measuring value creation in mergers and acquisitions essentially entails two fundamental approaches: stock market metrics and operating performance metrics.

Goedhart, Koller and Wessels¹¹ report that emotions can drive market behaviour in short-lived situations, but fundamentals will still rule in the long-term. Hence stock

market valuations over the short period of deal announcement may not reveal the true underlying value assigned to the shares of the acquiring and target company.

Dobbs and Koller¹² indicate that the most common approach in measuring a company's stock market performance is to calculate its total returns to shareholders (TRS) over time. This approach, according to the study, has severe limitations because over short periods (e.g. deal announcement periods or commodity price fluctuations) TRS embodies change in a company's future performance more so than its underlying performance and health. Companies that consistently meet high performance standards can thus find it hard to deliver high TRS. In other words, the better a company performs, the more the market expects of it.

The report further indicates that companies can compensate for the shortcomings of TRS by employing complementary measures of stock performance. One of these is the market value add (MVA), which is the difference between the market value of a company's debt and equity and the amount of capital invested in it. A related metric is the ratio of market value to capital, which is the debt and market equity compared with the amount of capital invested. In this way market value to capital ratio and MVA will complement TRS by measuring different aspects of a company's performance.

TRS measures against market expectations and changes in them, whereas MVA and the market value to capital ratio, by contrast measures the financial market's view of a company's future performance relative to the capital invested in it. In this way we can assess expectations of its absolute performance.

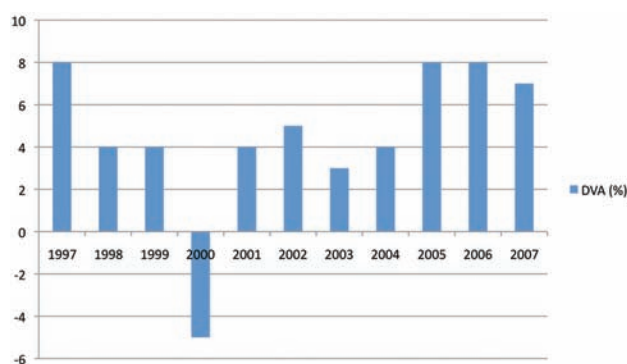


Figure 8—Deal value add (DVA) from 1997 to 2006

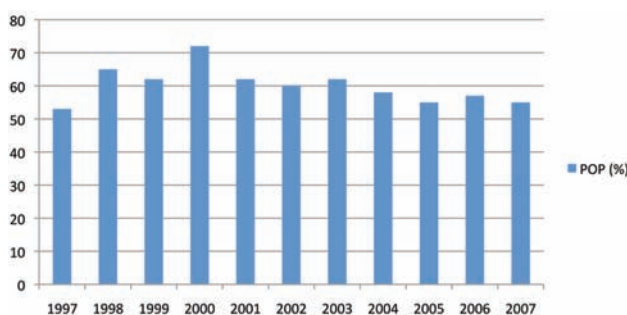


Figure 9—Proportion overpaid (POP) from 1997 to 2007

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Deelder, Goedhart, and Agrawal¹³ also highlight that TRS, like any other performance metric, is instructive only when users understand its components. Actual corporate performance, for example, is only part of the mix, as TRS is also heavily influenced by changes in investor expectations of future performance. The study regards the traditional way of defining TRS as the sum of the percentage change in earnings plus the change in market expectations as flawed because not all forms of earnings create value, but rather those that are rooted in activities that generate high returns on capital. It also indicates the error in the traditional way of relating TRS to dividend payments, because dividends do not create value. For example, if a company pays a higher dividend today to take on more debt, its future dividends are likely to be lower.

Dobbs, Nand, and Rehm¹⁴ also discuss the potential flaw in using earnings per share (EPS) as a tool in valuing mergers and acquisitions. The study indicates that assessing the impact of acquisitions on net income rather than on EPS corrects for the dilutive effect of acquisitions that involve the issue of shares. When a company uses cash to complete a transaction, its earnings are reduced by the loss of interest income on cash used in the transaction, or by the interest on the additional debt. When it uses additional shares to complete a transaction, EPS declines mathematically, since earnings are spread across a greater number of shares. The study also discusses the impact of accounting rules on the way acquisitions get treated in terms of goodwill and amortization, and the need for consistency to reflect the correct picture over time and across borders.

In measuring long-term performance, Dobbs and Koller¹⁵ indicate that earnings per share and share price may not give a good indication of the state of a company, because they don't necessarily indicate whether a company is fundamentally healthy in the sense of being able to sustain its current performance and to build profitable businesses in the future. In other words, a falling share price may not be a sign of poor performance.

There is therefore the need for a comprehensive performance assessment that measures the value created and estimates its ability to create more. This will assist in maintaining a balance between short-term and long-term value creation. A company's historical growth and returns on capital can be measured directly, but the potential for future growth and returns must be inferred. To do so, it is necessary to devise metrics that gauge the longer-term health of the company and also complement the metrics for short-term performance.

In other words, a patient visiting a doctor may feel fine, for example, but high cholesterol could make it necessary to act now to prevent heart disease. Similarly, a company may show strong growth and returns on capital, but the health metrics are needed to determine if that performance is sustainable. This leads to the establishment of non-financial metrics.

A company's cash flow and, ultimately, its market value stem from its long-term growth in revenues and profits and from returns on invested capital (ROIC) relative to its cost of capital. A discounted cash flow (DCF) analysis, based on projected performance and the use of the relevant health indicators (sometimes non-financial) will therefore assist in

understanding the link between shareholder value, as measured by stock markets, and the drivers of value.

The study indicates that organizational performance can be measured in three different categories, namely:

- The economic value the company has created historically
- Metrics that can gauge the company's ability to sustain that value created and manage the risks that might prevent it from doing so
- Assessment of its capital market performance

Considering the non-financial or health metrics, it is important to know whether a company has the products, the people, and processes to continue creating value. Assessing the risk a company faces and the measures in place to mitigate them is also an important tool in measuring health. Diagnostics of organizational health will typically consider the skills and capability of the company, its ability to retain its employees and keep them satisfied, its culture and values, and the depth of management talent. These health metrics have to be quantifiable and should not be generalized but adapted to suit each situation. Health metrics are also an important measure of post-merger integration.

The work of various authors reveals that no single indicator or few indicators used in isolation can give a fair indication of overall value creation. The various studies also highlight the extent of differences in opinion in the type of financial indicators to be used in measuring value creation and the interpretation of the indicators used. It also stresses the importance of long-term and short-term metrics as well as the use of historical performance and the anticipated future performance in deriving conclusions on value creation. It is also clear that the use of financial metrics, complemented by health metrics, is very useful in getting a holistic view on value creation.

For the purpose of this study, the financial metrics that reflect the returns to shareholders in the form of earnings and dividends as well as the share price performance relative to market was used. The Du Pont analysis, which measures the return on equity as a final stage of value to shareholders, was also included. The level of debt was used as a complementary measure to earnings available to shareholders.

Key value determination indicators

The key parameters that impact directly on shareholder value will therefore be centred on earnings, dividends, share price performance, and the level of debt using the following ratios:

- a) Earnings per share
- b) Dividends per share
- c) Return on equity
- d) Price/earnings ratio
- e) Debt/equity ratio.

This does not mean other parameters are not important in value assessment. These will be complemented by non financial ratios based on the merger objectives, health indicators, and BEE compliance in the South African mining industry, which include:

- a) Acquisition of skills
- b) Acquisition of better operating processes and systems
- c) Acquisition of quality resources
- d) Compliance with the Mining Charter and subsequently obtaining new order mining licences

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- e) Growth in production and output from existing assets and project pipeline
- f) Operating efficiency in terms of cash unit cost
- g) Access to markets.

From the discussions on how value is determined, the following can be used as a guide:

- *Short-term metrics*—announcement effects (deal value add and portion over paid)
- *Medium to long-term metrics—financial indicators* (ROE, EPS, DPS, P/E, D/E ratio) and non-financial indicators (growth in production, skills, quality resources, operational efficiency, compliance to mining charter, markets etc.)
- *Basis for comparison*—pre-merger and post-merger results, industry average performance (since it strips out the effect of change in external factors like commodity prices, exchange rates, and other appropriate benchmarks)
- *Period of measurement*—Announcement effects should be two days prior to deal and two days after deal, and medium-term assessment should be from 3-5 years

The merger between Harmony and ARMgold

Merger description

In May 2003, Harmony Gold Mining Company Limited (Harmony) and African Rainbow Minerals Gold Limited (ARMgold) announced details of a proposal to create a world-class unhedged gold producer with the bulk of its operations in South Africa.

The merger was to create the fifth largest gold producer in the world, producing approximately 4.0 million ounces per annum. The transaction was effected by the issue of two Harmony shares for every three ARMgold shares held and the payment of a special dividend of R5 per ordinary share by ARMgold prior to the merger. On the same day, the two companies announced details of a 50/50 joint acquisition of 34.5% stake in Anglovaal Mining Limited (Avmin) for a cash price of about R1.7 billion, which represented a premium of about 30% above the prevailing price¹⁷.

On 15 July 2003, Harmony acquired a further 11.5% stake in Avgold through the issue of about 6.9 million ordinary shares, which represented about 3.8% of the issued share capital of Harmony at that time.

This resulted in Patrice Motsepe becoming the biggest shareholder in Avmin, and also created the first black empowered diversified mining company, called ARM, having assets in gold, platinum, ferrous metals, and exploration in copper in Zambia.

The new Harmony effectively owned and operated the Freegold, Target, and Orkney operations in addition to the assets of the old Harmony, making it the largest gold producer in South Africa at that time with the largest gold resource base, and it also operated major growth projects. It also owned about 20% of ARM at that time, which it subsequently sold at a later stage.

Deal objectives

The key merger objectives, as recorded in the 2003 Annual Reports of Harmony and ARMgold, as well as presentations made to investors at that time, can be summarized as follows:

- The creation of a diversified black empowered mining company
- The new ARM will create value for shareholders by using its successful past business model and contributing to communities in which it operates
- Harmony's compliance to the MPRDA in terms of black ownership requirements, and subsequent appointment of a black non-executive chairman
- Creating a new Harmony that will have the largest gold resource based (about 520 million ounces)
- The new Harmony will be the 5th largest producer of gold in the world, producing about 4 million ounces of gold, and having growth projects that will enable it to increase its production further
- Implementation of CONOPs (a continuous operating shift system used successfully at ARMgold) at all Harmony operations to sweat its assets and increase gold production to generate improved earnings and help fund future growth projects
- Use the Harmony business model of cost focus, better ore-reserve management, and flat management style to further enhance operational performance.

Value creation parameters applicable

This deal was assessed on the basis of value creation for Harmony shareholders using the following indicators or parameters:

- Merger objectives in terms of what shareholders expected and what has been achieved
- The initial market sentiments on the deal and its effect on share price of Harmony and ARMgold using the deal value added (DVA) as a short-term metric.
- Non-financial parameters like access to quality orebodies, access to quality skills, better operating processes, growth in production, improvement in operational efficiency, compliance with legislation etc.
- Financial parameters like return on equity (ROE), earnings per share (EPS), dividends per share (DPS), price-earnings ratio (P/E) and debt-equity ratio (D/E)
- Depending on information available and where applicable, the non-financial parameters were measured on past performance compared to current performance. The financial parameters were based on past performance and were also compared to industry performance.
- The first 5 years after the deal gives an indication of the medium-term value created. Most of the discussion will therefore be based on value created in the medium term from 2004 to 2008. However, an indication will also be given in terms of what the prospects are in the next 5 years for long-term value to be realized.

Short-term metric (deal value add)

Deal value add (DVA) is a short-term metric used by McKinsey to determine value creation. It is essentially the difference between the combined market capitalization of two companies two trading days prior to the merger announcement and two trading days after the announcement. Its objective is to capture the markets' perspective as to whether they believe it is a good deal or not. It also considers

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the share price reaction for the acquirer. To establish this, we need to observe the market reaction to Harmony and ARMgold relative to the deal announcement date of 2 May 2003.

The merger announcement had a positive DVA of about R1.89 billion, which is about 10% increase in the combined market capital of the merging companies, with Harmony showing a 12.52% change in market capital. Figure 10 is a graphical illustration of the changes in the market capital of both companies.

The changes in market capital could also be affected by external market effects of gold price and exchange rate. Figure 11 shows the share price movement of Harmony relative to the JSE Gold Index. The two trading days prior to 2 May is 29 April and the two trading days after 2 May is 6 May. It can be seen that the JSE Gold index moved from 94 to 101 (7 points), whereas Harmony moved from 89 to 102 (13 points) over same period.

The market's reaction to the deal was positive as depicted in the DVA, and this added value to the market capital. According to McKinsey, there normally exists a positive correlation between DVA and long-term value creation. In other words, in an efficient market, where fundamentals rule as opposed to short-term emotions, the market's prediction of value creation normally tends to be realistic. This is true if the market has adequate information on what is actually happening in the organization, as well as their ability to predict the future dynamics within a particular industry. It is also based on the flawed assumption that a company's internal capability remains constant and therefore past performance predicts future performance. This is, however, not always the case.

Medium-term metric (non-financial parameters)

In terms of access to quality orebodies, Harmony's total resource, including project ounces, increased by 39% from 296 million ounces to 410 million ounces. Total reserves also increased by 26% from 49 million ounces to 62 million ounces¹⁷.

In terms of synergy, the Freegold and Target mining areas were extensions of most of the old Harmony operations, and this close proximity further enables the exploitation of synergies between these assets and the old Harmony assets. The classification of these assets in terms of marginal, quality, long life quality, and project growth ounces is depicted in Table V.

In general, Harmony had access to some quality orebodies as a result of the merger, more specifically Tshepong, Masimong, and Target. It also took over some orebodies that were depleted, an example of which was Orkney.

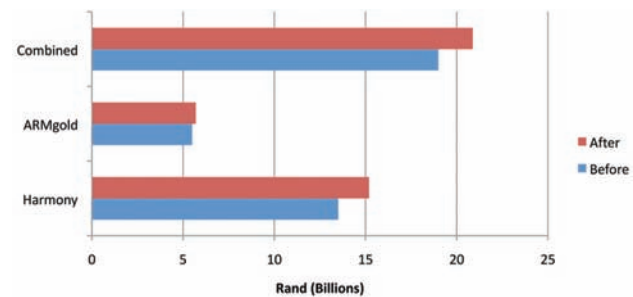


Figure 10—Changes in market capital due to Harmony/ARMgold announcement effects



Figure 11—Harmony share price reaction relative to JSE gold index

Table V

Harmony assets classification

Marginal ounces	Quality ounces	Long life quality ounces	Project growth ounces	Potential project
Harmony Joel Rest of Freegold St Helena Australian ops Orkney Shafts	Evander Kalgold Randfontein Highland Gold (31%) Bendigo (32%) Aurion (9.8%)	Masimong Elandskraal Tshepong Bambanani	Tshepong North Phakisa Doornkop Target (26%)	Morobe/Wafi Poplar Rolspruit Kalplats

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The fact that Masimong, Tshepong, and Bambanani (long life quality assets) and Tshepong North, Phakisa, and Target (project growth assets) form part of the merger transaction shows that Harmony secured long life and growth potential from these merger assets.

In terms of access to skills, Harmony acquired a lot of executive management skills through this acquisition but some personnel left at a later stage. In most cases, there is also duplication in roles through mergers, and that often leads to redundancy. Some of the skills were also redeployed to the newly formed ARM. Harmony, however, retained the skills of Patrice Motsepe, who has provided guidance to the company as non-executive chairman, and Andre Wilkens as a non-executive director. Alwyn Pretorius, Chief Operating Officer, came over from ARMgold and the ex Chief Operating Officer, Peter Steenkamp, also came from ARMgold. So in a nutshell, the merger brought some additional skills to Harmony.

In terms of improved processes and systems, CONOPs was earmarked to bring about a substantial increase in production and reduce cash operating cost per ton by 5–8%¹⁸. There was success in some operations, but a lot of difficulty was experienced with organized labour, especially in the Free State. The company therefore did not make the progress anticipated. In the Chief Executive Officer's Review¹⁹, CONOPs was not delivering the desired results and has since been abandoned.

In terms of production output, Harmony experienced a continuous decline in gold production from 2004 to 2008. Prior to the merger, Harmony produced about 2.6 million ounces of gold in 2002, and ARMgold about 1 million ounces. Gold production declined to 3.3 million ounces in 2004 and 2.3 million ounces in 2007. Within this period inflationary pressure in the South African mining environment impacted on the unit cost of mining companies and hence the mining cut-off grade, resulting in some assets becoming unprofitable. Some of the Harmony assets had also depleted their reserves. In 2008, the sale of Harmony's Orkney assets to Pamodzi Gold and Randfontein Cooke operations to Rand Uranium resulted in a further loss in gold production, with annual gold production plummeting to about 1.6 million ounces.

The period 2004 to 2008 has therefore been a reverse of the growth story prior 2004. Figure 12 illustrates the gold production profile.

In terms of operational efficiency, Harmony's unit cost in terms of rands per kilogram of gold produced has also shown a substantial increase year-on-year in the period 2004 to 2007, with an improvement in 2008. The producer price index for mining and quarrying²⁰ shows a marked increase between the periods 2004 and 2008, as indicated in Figure 13.

Between 2004 and 2008, this index moved from 120 to 180 (a difference of 60 units), compared to the period between 2000 and 2004 when it went from 95 to 115 (a difference of 20 units). This gives an indication of the inflationary environment in which Harmony, like any other South African mining company, operated in.

Harmony's unit cost R/kg of gold produced rose from about R82 000 per kilogram to about R138 000 per kilogram in 2007 (about 60%) before improving to about R110 000 per kilogram in 2008. It can be seen that in the period 2004 and 2006, cost increases followed a historical trend, but 2007 and 2008 show excessive cost increases, with 2007 affected by restructuring and a decline in production. Even though there was a general escalation in cost in the industry, Harmony also had the opportunity to establish one of its key strategic differentiators (cost focus), which was not evident over this period.

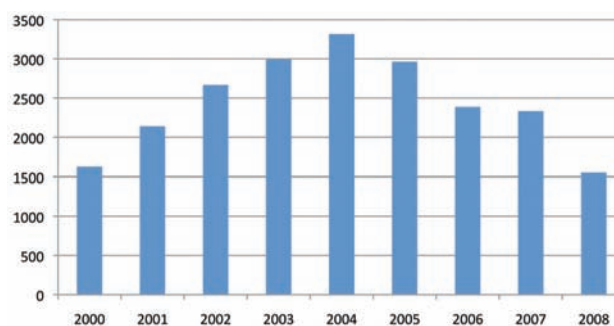


Figure 12—Gold production in thousands of ounces



Figure 13—Producer price index for mining and quarrying

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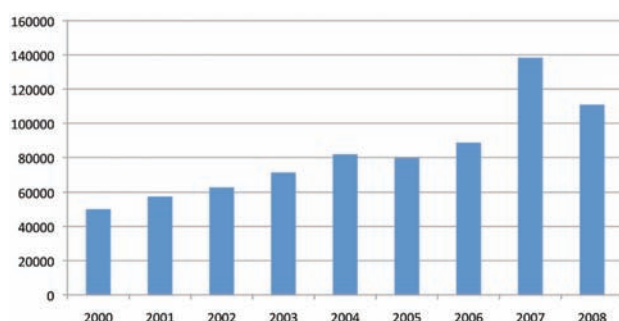


Figure 14—Unit cost of gold production in rands per kilogram

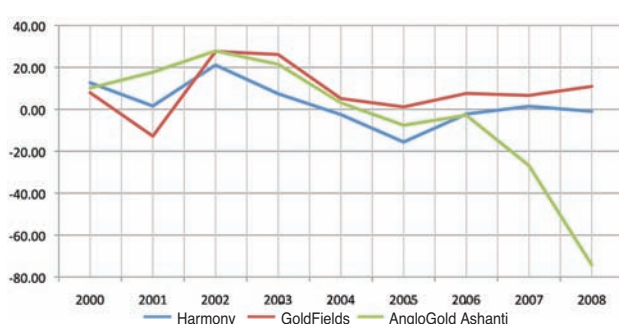


Figure 15—Return on equity (%)

In terms of legislation, one of Harmony's expectations in this deal was to enhance its BEE ownership credentials in support of its mining licence applications. It also led to the formation of newly established diversified black empowerment company in the form of African Rainbow Minerals (ARM). The Harmony/ARMgold merger contributed significantly to the empowerment credentials to enable Harmony achieve a score of 24%, which was already well in excess of the Charter's requirement of 15% within 5 years in terms of BEE ownership.

In October 2004, Harmony became the first senior company to convert from 'old order' to 'new order' mining rights for the Evander, Randfontein, and Elandsdraal (Elandsrand and Deelkraal) operations. During the 2008 financial year, the company achieved a significant milestone when the DME granted the conversion of additional 13 mining rights. The company therefore had all its mining rights converted in terms of the MPRDA. This is a laudable achievement considering the current climate of backlogs and delays in licence conversion in the South African mining industry.

Above all else, Harmony did secure the right to mine, which is a prerequisite to conducting mining operations in South Africa, without which there can be no guarantee of, and sustainability of, shareholder value.

Medium-term metrics (financial parameters)

The medium-term financial metrics will consider return on equity (ROE), earnings per share (EPS), dividends per share (DPS), price-earnings ratio (P/E) and debt-equity ratio (D/E) over the period of 5 years (from 2004 to 2008). All the financial ratios were sourced from McGregor BFA²⁰.

The assessment will compare these metrics to the 3 years prior to the deal (2000 to 2002), other JSE gold companies (Gold Fields and AngloGold Ashanti) and also discuss trends.

Measured against past performance, ROE has shown a decline, especially from 2004 to 2006, but has since shown a steady improvement. Measured against its peers, Harmony shows same ROE trend as Gold Fields and AngloGold Ashanti, except that AngloGold Ashanti shows a dramatic decline from 2006 to 2008. Harmony's ROE can therefore be attributed to the gold mining industry dynamics which evolve around producer price index (for mining) and rands per kilogram gold price received.

Measured against the past, EPS shows a decline, especially between 2004 and 2006, after which a slight positive improvement is shown from 2007 to 2008. Compared to its peers, Harmony shows the same trend, except that AngloGold Ashanti shows a drastic decline from 2007 and 2008. Harmony's EPS can therefore be attributed to industry dynamics.

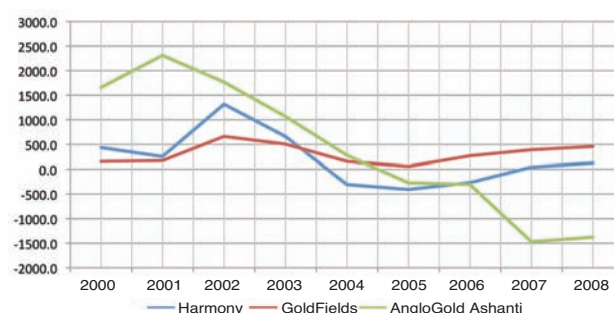


Figure 16—Earnings per share (SA cents per share)

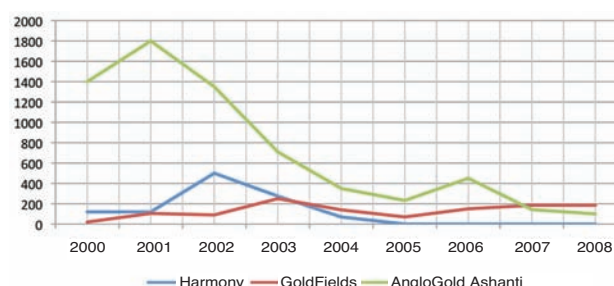


Figure 17—Dividend per share (SA cents per share)

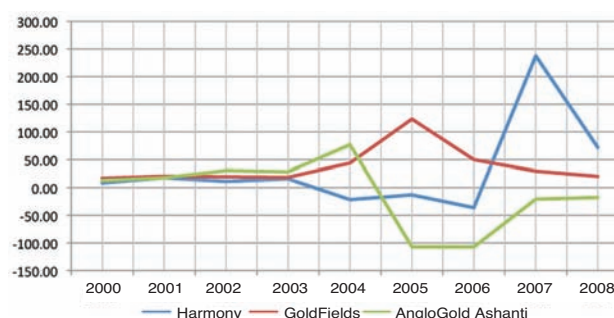


Figure 18—Price earnings ratio

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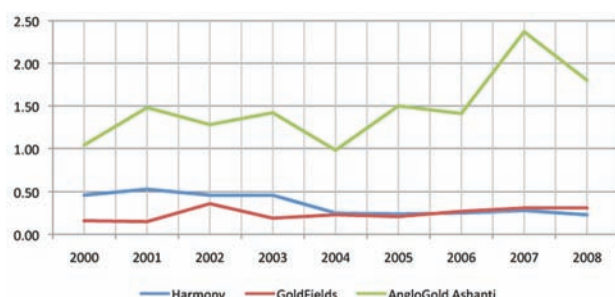


Figure 19—Debt-equity ratio

Harmony's dividend per share has shown a decline compared to the past, with no dividends declared from 2005 to 2008, whilst its peers did pay dividends over the same period. With huge capital projects currently in place, this may have been a prudent thing to do.

Harmony's P/E ratio declined from 2004 to 2006, and then increased considerably in 2007 and 2008. Its performance relative to its peers is indicative of industry dynamics, underperforming Gold Fields from 2004 to 2006, and out-performing its peers in 2007 and 2008.

Despite its huge capital expansion programme, Harmony has managed to reduce its debt to a reasonable level. However, it had to dispose of assets (GoldFields shares, Orkney, Randfontein Cooke operations etc) to raise cash, which has impacted severely on its gold production. Compared to its peers, its D/E ratio is reasonable. The choice of raising cash through the disposal of 'less profitable assets'

as opposed to share issue has prevented share dilution. This should have a positive impact on its EPS and P/E ratio going into the future.

It would also have been expensive to raise cash through a share issue, considering Harmony's share price performance. The current global financial market also makes it difficult to secure debt.

Overall deal value assessment

In terms of deal objectives, the merge did create the required empowerment credentials for renewal of old order mining licences. Harmony's further commitment to dispose off its 20% stake in ARM to black empowerment interests further underpins the company's proactive commitment to transformation in the South African mining industry. Even though, in hindsight, the 20% could have yielded good returns judging by the performance of ARM over the past 5 years, good business decisions do not always entail monetary benefit. They are also about wealth maximization (which involves all stakeholders) as opposed to profit maximization (which focuses on shareholders only).

In terms of production growth through CONOPs, operational improvements and projects to achieve 4 million ounces annual production, Harmony did not achieve this objective.

In terms of improvement in earnings, Harmony's performance has been mixed. The period between 2004 and 2006 has been disappointing, while the period between 2007 and 2008 shows some improvements. This performance is more of a reflection of industry trends between 2004 and 2006 when costs escalated with the rand per kilogram gold

Table VI

Deal value assessment for Harmony

Value assessment indicators	Outcome	Comments
Deal objectives		
Compliance with mining charter and promotion of BEE	✓	Achieved these objectives very well
Largest gold resource	→	Few resource were converted to reserves
Sustainable annual gold production of 4 million ounces	×	Gold production declined to 1.5 million ounces in 2008
Implement CONOPs to reduce cost and enhance production	×	CONOPs did not achieve expected results and was halted
Implement Harmony way to improve bottom line	×	No growth in revenue, and no improvement in cash cost
<i>Deal objectives assessment</i>	×	Value destroyed on the basis of deal objectives
Non-financial		
Acquisition of skills	→	To some extent at executive management level
Acquisition of better operating systems and processes	×	CONOPs did not achieve the expected results and was terminated
Acquisition of quality resources	✓	Did acquire quality resources as shown in current growth projects
Compliance with mining charter and mining licence status	✓	Complied well beyond requirements and mining licence secured
Growth in production from existing assets and projects	×	Gold production declined to 1.5 million ounces in 2008
Operating efficiency (unit operating cost)	→	Did not show improvement, but trend was indicative of industry
<i>Non-financial assessment</i>	→	Value was neither created nor destroyed on the basis of non-financials
Financial		
Return on equity (ROE) -%	→	Declined (2004 to 2005), improved (2006 to 2008), industry trend
Earnings per share (EPS) -cps	→	Declined (2004 to 2005), improved (2006 to 2008), industry trend
Dividend per share (DPS) -cps	×	Declined (2004 to 2005), and no dividend was paid thereafter
Price earnings ratio (P/E)	✓	Averaged industry peers, and outperformed peers in 2007 and 2008
Debt equity ratio (D/E)	→	Declined (2004 to 2005), improved (2006 to 2008), industry trend
<i>Financial assessment</i>	→	Value was neither created nor destroyed on the basis of financials
Overall deal assessment	→	Value was destroyed to some extent, but still shows potential
Legend		
	✓	Value assessment indicator was achieved
	×	Value assessment indicator was not achieved
	→	Indicator not fully achieved but potential exists

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price actually declining from about R96 000 per kilogram to about R85 000 per kilogram in 2004 and 2005, before rising again in the latter stages of 2006. This performance is also mirrored Harmony's its peers.

In terms of creating a large resource base, Harmony achieved that objective, but more value could have been created if more mineral resources were moved into the mineral reserve category between 2004 and 2008 through improved cut-off grades, more development, and exploration.

In terms of short-term metrics (DVA), the market sentiment was very positive and caused a substantial increase in the market capital of the two companies in the short-term.

In terms of non-financial indicators, Harmony had access to quality orebodies, access to some additional skills, and was able to comply with the legislative requirements of the MPRDA. There was no substantial improvement in operating processes (due to CONOPs), no growth in gold production, and not much operational improvement in terms of the unit cost of gold produced. The unit cost was, however, affected by rising inflation and lower gold production, partly due to the lack of adequate electricity supply from Eskom and safety interventions by the DME.

In terms of the financial indicators of ROE, EPS, DPS, P/E ratio and D/E ratio, Harmony's performance was due largely to industry dynamics as is reflected in the performance of its peers over the same period.

Long-term outlook (next 5 years)

Harmony has secured mining licences for all its operations. It has restructured its balance sheet, and looks healthy from a debt point of view. It has access to quality orebodies and exciting growth projects that are moving towards commissioning. There has been some improvement in unit costs in 2008, and that focus, if maintained could see further improvement in the next 5 years relative to the industry. Gold is heading for a bullish period at the current dollar price.

The next 5 years can be an exciting time for Harmony, if costs are kept well below the industry average and growth projects are commissioned on schedule. This should improve earnings and shareholders can expect a substantial improvement in ROE, EPS, DPS, and P/E ratio.

Conclusion

This value assessment model has provided a very holistic basis for assessing the Harmony and Armgold merger, and also creates an informed opinion on whatever conclusions one may draw from the outcome, since the interpretation will in most cases be subject to debate. What makes this model different is its use of financial and non-financial indicators, appropriate industry benchmarks and deal objectives to arrive at a holistic assessment as opposed to the use of purely financial models, which tends to be often the case. Most importantly, it offers the shareholders of ARM and Harmony and all stakeholders a sound basis for reflection to make their own judgement on what impact the deal actually had on them, and what the potential could be for the future.

This value assessment model can also be used as a guide to making a very holistic assessment of mergers and acquisitions in the South African mining industry, especially

with BEE deals, which have been the subject of controversy and currently undergoing a revision. The basis of value determination and parameters used can be modified to suit each particular case, and different weightings can be applied to these parameters to reflect the value contribution of the various elements.

Acknowledgements

The data used for this study was sourced from McGregor BFA to ensure consistency in the mining industry reporting and calculation of financial indicators, and was based on the performance of these companies up to 2008. Different indicators could be used depending on where they are sourced from, since different companies may not use the same approach or formula in calculating the indicators.

Information on the deals that occurred in the South African mining industry between 2003 and 2008 was sourced from Dealogic.

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