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MONIQUE REID AND STAN DU PLESSIS

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MONIQUE REID
DEPARTMENT OF ECONOMICS
UNIVERSITY OF STELLENBOSCH
PRIVATE BAG X1, 7602
MATIELAND, SOUTH AFRICA
E-MAIL: MREID@SUN.AC.ZA

STAN DU PLESSIS
DEPARTMENT OF ECONOMICS
UNIVERSITY OF STELLENBOSCH
PRIVATE BAG X1, 7602
MATIELAND, SOUTH AFRICA
E-MAIL: STAN@SUN.AC.ZA



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Talking to the inattentive Public: How the media translates the Reserve Bank's communications

Monique Reid* and Stan du Plessis†

Abstract

Central bank communication is widely recognised as crucial to the implementation of monetary policy. This communication should enhance a central bank's management of the inflation expectations of the financial markets as well as the general public – the latter being a part of the central bank's audience that has received relatively little research attention. In this paper, the role of the media in transmitting the SARB's communication to the general public is explored, with the aim of improving our understanding of its impact on the expectations channel of the monetary policy transmission mechanism. A deliberate evaluation of this channel could aid the design of future strategies to communicate with the general public.

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Keywords: South Africa, central bank communication, consistency, monetary policy transmission mechanism, transparent monetary policy.

1. INTRODUCTION

Private sector inflation expectations are critical to successful monetary policy. It is to an important extent through the expectations channel of the transmission mechanism that policy changes are transmitted to interest rates at various horizons along the yield curve (Woodford, 2005), thereby influencing economic activity. Recognition of this has encouraged an overwhelming move towards greater transparency in monetary policy, and communication has consequently become an essential part of a central bank's strategy to manage inflation expectations in pursuit of price stability. As a result, the academic literature concerning central bank communication has flourished over the past two decades (Blinder et al., 2008).

* Department of Economics, Stellenbosch University.

† Department of Economics, Stellenbosch University. The authors acknowledge financial support for this project from Economic Research Southern Africa. This paper is also available as ERSA working paper number 254.

Most of this research has focused on the central banks' communication with the financial markets. However, a central bank's audiences are heterogeneous and not all are equally attentive to central bank policies, a fact that central banks should bear in mind when designing communication strategies. It is impractical to incorporate the full range of this heterogeneity within a single economic model, but it is possible to identify broad groups with similar characteristics. Blinder and Wyplosz (2004) divide the central bank's audience into two groups: the broad public and its political representatives (general public) on the one side, and the financial markets on the other. Cukierman (2005) proposes that the general public will be rationally inattentive to short-term fluctuations of inflation if the central bank is credible. The concept of rational inattention is more common in the fields of behavioural economics and the economics of information, from which this paper will draw. However, recent application of rational inattention to the modelling of the Phillips curve has offered valuable insights (including Mankiw and Reis, 2001, 2001a, 2006, 2006a; Carroll, 2002, 2003; Sims, 2003, 2005, 2010).

The communication tools used by the SARB to promote transparency about monetary policy include the monetary policy statements, monetary policy forums, the publication of monetary policy reviews and quarterly bulletins, occasional press releases, speeches by the governor, and the presentation of a report at least three times a year to the parliamentary portfolio committee on finance (SARB, 2006). However, very few members of the general public are ever exposed to these forms of communication directly. Most monetary policy communication with the general public is transmitted via the media.

This paper focuses on evaluating the role the South African media plays as part of the expectations channel of the transmission mechanism. The paper does not model the transmission mechanism via the media so it cannot comment on the nature of the media's impact on expectations, but the case is made in the paper that 'the media matters' in some way. Furthermore, the role of the media in the expectations channel of the transmission mechanism is supported by evidence in Reid (2011) that the inflation expectations of the South African general public is explained primarily by a combination of the inflation expectations of the financial analysts and past inflation. The public is assumed to be exposed to the inflation expectations of the financial analysts via media reports which frequently quote the analysts when evaluating monetary policy.

This paper focuses on communication via a particular segment of the printed press (newspapers), and draws on existing research in the fields of political science, communications and economics. The results reveal notable shortcomings in the evaluation and reporting of monetary policy by the South African media. They are not adequately fulfilling their role of digesting monetary policy information and thereby

promoting transparency or holding the SARB accountable to the public. This in turn inhibits the successful use of the expectations channel of the transmission mechanism, which inflation targeting is designed to employ. In addition, the regression results don't show any clear influence of the SARB's intermeeting communication on the media reports. We argue that there is scope for the SARB to respond to the known shortcomings of media reporting when it communicates with the public.

2. MONETARY POLICY COMMUNICATION VIA THE MEDIA WITH THE RATIONALLY INATTENTIVE PUBLIC

In the broadest practical sense, the objective of central bank communication should be, firstly, for the message to *reach* its audience and, secondly, for its message to be *perceived* as trustworthy. If central bank communication is successful in reaching its audience, it has created the opportunity to earn a reputation for credibility through its decisions and behaviour and to manage inflation expectations in the interests of improving the effectiveness of monetary policy. The challenge is that the extent of the media's coverage of monetary policy and the manner in which the message of the central bank is interpreted and conveyed to the public are the result of a number of interacting influences and are only very loosely influenced by the central bank.

In order for a central bank to communicate effectively with the rationally inattentive public, it needs to understand the characteristics and incentives of the media that transmit the central bank communication to the general public, the professional economists quoted in the media, as well as the characteristics of the rationally inattentive audience itself. The recognition that the success of the central bank's communication depends at least partially on the actions of the media, professional economists and the rationally inattentive audience highlights the strategic nature of the interaction between the central bank and its audience (Schotter, 2001; Shelling, 1960).

While the sustained credibility of a central bank is clearly determined by the long-run track record of monetary policy, this presupposes public understanding of the policy goals against which the central bank is to be judged. The argument in this paper is no apology for manipulation of the media by the SARB. It is an argument for the conscious participation of the Bank in the public discussion on monetary policy. This is in line with McCloskey's argument that responsible, scientific economists should use language in a conscious manner. According to McCloskey 'Using scientific language wide awake requires attention to the other minds present when you speak' (1998: xix); and the purpose of rhetoric should be to 'engage in mutual enquiry' rather than to 'talk someone else into a preconceived idea' (1998: xx).

Credible central banks have understood the role of purposeful rhetoric for many years. For, example the Bundesbank and Swiss National Bank of the 1970s are viewed as benchmarks for successful monetary policy. The main lessons Bernanke et al (1999: 84) identify from the experience of these two central banks are that a targeting regime is able to contain inflation in the longer run even if it misses the target in response to short-run considerations; and that a strong commitment to transparency (transparency about the policy objectives and approach, together with clear explanations) is key to this success.

In South Africa the monetary authorities already use communication extensively. The argument presented here is simply that there is scope for the SARB to view the discussion from the audience's perspective, as portrayed by the media. This perspective, we argue, suggests scope for the SARB to tailor its communication to suit this segment of the audience. This would allow the SARB, for example, to react timeously to a misunderstanding of the policy process or goals in the media. The SARB could, for example, place a formal response in the newspaper, in the spirit of the articles published in the Business Day shortly after the adoption of inflation targeting (Business Day, 2002). It is important that this should be done in a manner that clarifies, rather than stifles the debate.

In summary, an understanding of the incentives facing each of the participants in the strategic game of monetary policy is essential to influence the outcome of these interactions (the news reports). We begin this study with the 'news', which is the outcome of this strategic interaction, our objective being to improve our understanding of the process that produces it.

2.1. THE SENDER'S (SARB'S) INCENTIVES

Della Vigna and Gentzkow (2009:4) define persuasive communication as "a message provided by one agent (a sender) with at least a potential interest in changing the behaviour of another agent (a receiver)." They argue that the supply of persuasive information is endogenous and is determined by both senders' incentives to distort the information and their offsetting incentives to provide accurate information in order to build a reputation. For example, the editor of a newspaper may favour a certain political bias in his or her newspaper in order to earn political favour (he or she may have an incentive to distort the information). Alternatively, the editor may be targeting a group of receivers that place great value on the accuracy of the reporting, providing an incentive for the editor to build a reputation for accurate and impartial reporting.

Similarly, the use of central bank communication in modern monetary policy implementation is precisely aimed at persuading the public to behave in a manner that promotes the central bank's objectives. Central banks face incentives to build a reputation of being credible. According to Blinder (2000), both central bankers and academic economists report that they view credibility as very important to a central bank. Blinder conducted a survey of academic economists and central bankers, in which he explored why these two groups believed credibility was important to a central bank and how they believed it could be built¹. Although the academic economists and central bankers did not exactly agree on the relative importance of the seven potential reasons provided to explain why they viewed credibility as important for a central bank, they did rate all of them as important (above neutral, 3). Interestingly, both groups of respondents regarded "it is the duty for a central bank to be truthful" as one of the least important reasons for pursuing credibility, although it was still regarded as important (rated above neutral, 3). This suggests that the pursuit of credibility is endogenous and is strongly influenced by strategic incentives.

Both central bankers and academic economists believe that a 'history of living up to its word', 'central bank independence' and a 'history of inflation fighting' are the most important ways to build credibility². Based on these findings, it appears that central banks have a strong incentive to communicate with their audiences in order to build a reputation. They need to demonstrate, over time, that the central bank is independent and trustworthy.

In this paper, the focus is on the central bank's communication with a particular segment of its audience – the rationally inattentive general public. The following section explores the characteristics of the general public in order to better understand the incentives they face and to communicate effectively with them.

2.2. RATIONALLY INATTENTIVE GENERAL PUBLIC

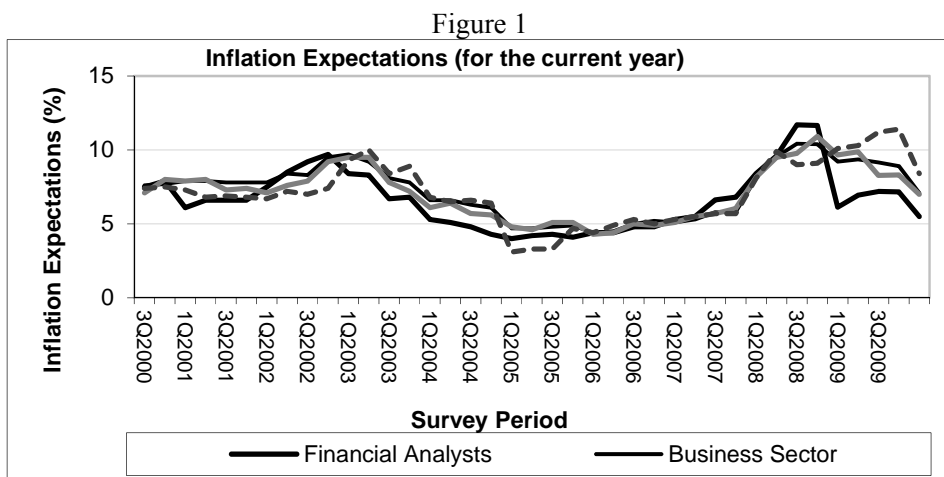
The interaction between central banks and financial markets has been extensively explored in the literature, largely due to the increased focus on the management of private sector inflation expectations and the relative abundance of high frequency, accurate financial market data. However, the financial

¹ Regarding reasons why credibility is important, respondents were provided with seven potential reasons, which they had to rate along a scale of 1-5, where 1 is 'unimportant' and 5 is 'of the utmost importance'. Six of the reasons Blinder listed related to how greater credibility would make the goals of the central bank easier to achieve. The 7th reason suggested was that it was the 'duty of a central bank to be truthful'.

² Both central bankers and academic economists ranked the potential methods of building credibility, provided by Blinder in the survey, in precisely the same order.

markets comprise only part (albeit an important part) of a central bank’s audience. In addition, the interaction of the financial market with the central bank will necessarily differ from the rest of the central bank’s audience, owing to the role and nature of its business. It is rational for market participants to pay close attention to the communication of the central bank, making their own judgements about the central bank’s policy primarily from official communication (first-hand versus second-hand communication).

In contrast, most of the general public are rationally inattentive to monetary policy, as they have other priorities with regard to their available time and attention. Figure 1 illustrates the inflation expectations survey data collected by the Bureau for Economic Research (BER) between the third quarter of 2000 and the first quarter of 2010. The BER surveys four groups of the SARB’s audience separately, which provides important information by revealing discrepancies between these groups. For example, between the beginning of 2006 and mid- to late-2007, the inflation expectations of the four groups were very similar. CPIX (the index targeted by the SARB) was within the target range the majority of the time between mid-2003 and mid-2007, and economic theories and models that considered only the inflation expectations of the financial analysts during this period would have been a fair reflection of the actual inflationary pressures. In contrast, there were large differences between the inflation expectations of the four groups in 2008 and 2009. During these periods of higher inflation, effective communication with the non-financial market part of the SARB’s audience became increasingly valuable in order to contain inflationary pressures. In addition, economic models that do not consider this divergence in inflation expectations between the different groups potentially compromise the quality of the model, which in turn will influence policy decisions.



Source: Bureau for Economic Research, inflation expectations surveys, 2000-2010

Both the acquisition and processing of the information concerning monetary policy is costly, and the public will rationally limit the amount of attention they dedicate to the task (Birchler and Büttler, 2007; Della Vigna, 2007). In Della Vigna's (2007) review of the empirical evidence on psychology and economics (a.k.a. behavioural economics), he offers 'limited attention' as a possible reason for non-standard decision making. He decomposes the actual value of the good, U , (in this case information communicated by the central bank) into a visible component, v , and an opaque component, o :

$$U = v + o \quad \dots(1)$$

However, the perceived value of the information, \tilde{U} , varies depending on the degree of inattention, Θ , chosen by the general public:

$$\tilde{U} = v + (1 - \Theta)o \quad \dots (2)$$

Θ is a function of the salience of the information (s) and the number of competing stimuli (N), $\Theta = \Theta(s, N)$, which are both influenced by the agenda-setting role of the media (elaborated on in the following section).

Media articles on monetary policy, which also typically report the views of professional economists, simplify both the acquisition and processing of the relevant information. According to Morris and Shin (2002), when decision makers have no private information and are making strategic decisions, even though public information is uncertain or imperfect, more precise information is welfare enhancing. It is reasonable to assume that the general public has very limited private information and that they turn to the media as a source of public information (interpretation of central bank policy and comments from economists). A substantial portion of the adult population of South Africa reports that they read newspapers, so they are likely to be exposed to the communication of the SARB as presented by these newspapers. According to the South African Advertising Research Foundation's All Media and Products Surveys (SAARF AMPS, 2007, 2008, 2009), about 26.5% – 31.5% of South Africa's adult population report reading any AMPS daily newspaper, and about 33% – 35.5% report reading any AMPS weekly newspaper. Given the above description of the rationally inattentive public's media consumption patterns, comprehensive management of a central bank's communication strategy should involve an understanding of the media's role in transmitting and interpreting the central bank's original message.

2.3. THE ROLE OF THE MEDIA IN MONETARY POLICY COMMUNICATION

News is a commodity, the production of which depends on supply and demand (Hamilton, 2004). Della Vigna and Gentzkow (2009) suggest that incentives facing the media depend on both consumer demand and supply-side incentives. Profitable media firms obviously react to consumer demand by aiming to produce a product that consumers will choose to purchase. This could result in media reports with varying levels of objectivity, depending on the target market's demand for accuracy versus entertainment or affiliation. In addition, the firm will face supply-side incentives to distort reporting, such as the personal views of the editor or pressure exerted by politicians and advertisers. The news report is the product of the interaction between these forces of demand and supply. Understanding that the press is not a passive conduit of central bank communication complicates the challenge of communicating with the public. Influenced by various incentives, the media can either aide the central bank by interpreting the central bank's message in such a way that the public understands it, or it can hinder the communication, for example, by pursuing provocative, newsworthy headlines (Filardo and Guinigundo, 2008).

For the central bank's communication to be successful, it must be judged by the media as interesting or important enough to be included as news (it must *reach* the public), and the message must be accepted by the public as appropriate. In order to *reach* the public, the central bank's communication would need to dominate other news and communication competing for the public's attention (N and s from equation 2, above). Filardo and Guinigundo (2008) identify the potential for an information paradox to exist in this situation, where the public rationally judges it to be unnecessary to use resources to monitor the decisions and behaviour of a central bank that is credible – especially if this central bank is operating in an economic environment with low and stable inflation. If the public believes that the central bank has both the ability and incentive to control inflation in the medium- to long-term, the inflation expectations of the public are anchored to the inflation target. Under these circumstances, the central bank should experience greater flexibility and require less aggressive adjustments of the monetary policy stance to achieve their goals.

Between the 1930s and 1970s, the prevailing consensus was that the effects of mass communication on the attitudes of those that receive the messages were minimal (Roger, Hart and Dearing, 1997, Scheufele and Tweksbury, 2007). However, when McCombs and Shaw (1972) changed the research question slightly, from whether media had a direct effect on the audience's attitudes, to whether the media's coverage of an issue influenced how important (or salient) the issue was considered by the audience, their results challenged the mainstream view. This agenda-setting research has expanded and deepened

substantially since then, adopting a number of different approaches to answer the question – ‘Does the media matter?’

This avenue of research has been productively applied to the question of whether the mass media has political influence. In 2007, two influential empirical studies were published to address this issue, one focusing on television and the other on newspaper reports. Della Vigna and Kaplan (2007) used the fact that, for technical reasons, the conservative FOX Media Channel was introduced to only some channel systems in the US before the 2000 presidential elections to set up a natural experiment. Changes in support for the Republican Party could then be compared across areas that had access to Fox News and those that did not. They found that exposure to the conservative news coverage had a significant and sizeable impact, estimating that it persuaded between 3 - 8 percent of its non-Republican voters to vote for the Republican Party. In the other study, Gerber, Karlan and Bergan (2007) set up a field experiment in Washington, three weeks before the 2005 Virginia gubernatorial elections in the USA to measure the effect of newspapers on voting behaviour. They contacted 1800 people and randomly offered 25% of them a free subscription to the Washington Post (biased toward the Democratic presidential candidate) and another 25% of them a subscription to the Washington Times (biased towards the Republican candidate). Using surveys, they were able to investigate how the political opinions of the respondents of the control group and the two treatment groups compared over the three weeks. They found that even exposure of only three weeks to either newspaper increased the chances that the reader would vote (it increased the salience of the election), but that regardless of which paper the people in the treatment groups received, they were more likely to vote for the Democratic candidate, suggesting that the actual information content rather than the slant of the newspapers had a greater influence on readers. Although the results of the two experiments differed slightly regarding the impact of media *bias* on the political opinions of the public, they both showed that exposure to the mass media did have some influence on the political behaviour of the public.

In conclusion, agenda-setting research suggests that ‘the media does matter’ and that it responds to incentives in the production of ‘news’ (it is not a passive conduit of communication). A central bank (the senders) should therefore monitor the role of the media in transmitting its communication to the general public (the receiver) in order to improve the effectiveness of its monetary policy. Given the technical skills required to understand and evaluate monetary policy, the media are also influenced by the analyses of professional economists. The incentives faced by these professional economists and their influence on the ‘news’ reports are explored in the following section.

2.4. PROFESSIONAL ECONOMISTS

Professional economists are extensively quoted in these kinds of media reports. The economists are viewed as specialists, who are able to interpret and evaluate the SARB's policies. They are also viewed as independent of the SARB, and therefore, their opinion is regarded as a more trustworthy reflection of how these policies influence the private sector.

As third parties in the communication process, professional economists face interesting incentives. Using the inflation expectations surveys of Reuters and the Bureau for Economic Research (BER), Ehlers (2010) recently provided empirical evidence indicating that although the inflation expectations of financial analysts in South Africa cannot be classified as naïve, and they are comparatively more accurate than those of the trade unions and the business sector, they are not formed in a fully rational manner either. Ehlers performed empirical tests that evaluated the extent to which the inflation expectations of the financial analysts were *weakly rational* (unbiased and efficient), *sufficiently rational* (outperform the forecasts of other naïve models) and *strictly rational* (outperform the forecasts of a suite of models). She concluded that on average the inflation expectations of South African financial analysts do not satisfy the conditions for weak rationality (they are unbiased, but inefficient), and tests results for the extent to which they are sufficiently rational are mixed, so they can consequently not be classified as strictly rational either. Since the 1990s, a branch of the literature has investigated the possibility that professional economists could have 'strategic' reasons for making forecasts that are not rational, rather than that they are myopic or lack the skill to forecast more accurately (Ashiya, 2009). These studies suggest that economists face two incentives that are potentially in conflict – an incentive to forecast as accurately as possible and some strategic incentive to bias their forecasts (to pursue their own self-interest).

Some reasons have been proposed to explain this strategic or rational bias. Ito (1990) found that forecasters in the survey he evaluated, which differentiated between forecasters from different industries, were slightly biased towards forecasting movements in the exchange rate that would please their employer most (wishful thinking hypothesis), but did not resolve whether this bias was unintentional or a strategic reaction on the part of the forecasters to incentives they faced. Laster et al. (1999) proposed that forecasters are remunerated or rewarded based on both the accuracy of their forecasts (which will facilitate better internal decision making within the company they work for) as well as the publicity they command for the company. These two objectives could be in conflict, and the weight placed on one goal relative to the other is likely to vary across industries. Despite findings that consensus forecasts are more accurate than almost any individual and the fact that they are readily available to forecasters, many forecasters still regularly provide forecasts relatively far from the consensus. The results of the empirical

study by Laster et al. (1999) suggest that industry members, such as banks, which are likely to value accuracy highly, tend to make forecasts in line with the consensus forecast, whereas independent forecasters who are likely to benefit substantially from publicity tended to forecast the outliers. Another potential explanation of rational bias in the forecasts of professional economists is the signalling hypothesis by Ashiya and Doi (2001), which proposes that forecasters who make forecasts that are different to the consensus may be signalling confidence, and conversely, forecasters who are weak are likely to remain close to the consensus to avoid being identified as particularly weak. Ashiya (2009) argues that there is little empirical evaluation of the validity of these hypotheses. He used a 26-year panel of annual GDP growth forecasts to rigorously test which of these hypotheses is supported empirically for GDP growth forecasts, and found that the data supported only the publicity hypothesis.

In conclusion, given the characteristics and incentives facing the rationally inattentive general public, the media is likely to be the main source through which these people receive the communications of the central bank. Effective communication of a central bank with the general public should be designed with an understanding of the incentives of the media and professional economists who influence the message that the general public ultimately receives. In the remaining part of the paper, the South African news (the outcome of a strategic interaction between the SARB and the South African media, economists and the general public) will be analysed empirically. This analysis aims to determine the role that the South African media has played in transmitting the communications of the SARB to the general public since 2000.

3. EMPIRICAL METHOD

Berger, Ehrmann and Fratzscher (2006) evaluate central bank communication according to two criteria – the extent of the media coverage, and its favourableness (how well the decision is understood rather than how popular it is). Using similar indices to evaluate the communication of the SARB will offer insight into the degree to which the SARB has succeeded in *reaching* the public and whether its communication succeeds in convincing the media that the policy decision was the correct one, given the economic environment.

The creation of the two indices for South Africa will be discussed in section 3.1, followed by exploratory data analysis in section 3.2. Section 3.3 proposes some factors that potentially correlate with the indices *COV* and *ASS*, and section 3.4 tests the relevance of these factors with more formal ordered probit regression analyses.

3.1. CONSTRUCTION OF THE INDICES

3.1.1. Qualitative index

Following Berger et al. (2006), two index variables were constructed to describe the extent of coverage and assessment of the SARB's monetary policy decisions by South African newspapers. Relevant newspaper reports were collected from the week following each MPC (monetary policy committee) meeting. Media reports for the entire sample period of January 2000 to September 2009 were collected via an electronic archive of media clippings (SAMedia), compiled at the University of the Free State. Careful attention was paid to ensure that the leading South African newspapers (by circulation numbers)³ were represented in the media clippings collected, and cartoons were also included, recognising their role in opinion formation. The *Daily Sun* (the country's leading daily newspaper by circulation numbers) and the *Sunday Sun* (a weekly newspaper with substantial readership) were not represented in the SAMedia archive, so these were sourced directly from the compact storage archives of the Media24 central library at the company's head office⁴. Table AI in the Appendix records findings for the main newspapers⁵ included in the study and a few details of each.

Each article or cartoon was read and evaluated independently by two researchers to allow the construction of the two indices. A qualitative index was created to capture the assessment of each monetary policy decision (*ASS*). This measures the degree to which the media regards the SARB's monetary policy decision as appropriate, given the economic environment (it does not indicate the popularity of the decision). The index ranges from -2 (reflecting a strongly negative response of the publication to the policy decision) to 2 (reflecting strong approval of the decision).

The creation of this qualitative index is inherently subjective. Both objective and subjective approaches to creating indices have been proposed in the literature, but in line with the arguments in Reid and Du Plessis (2008), the subjective approach was preferred. To limit the bias introduced by this subjectivity as far as possible, two researchers independently read each media article and assigned an index value for the

³ The SAARF AMPS surveys were used to identify the leading newspapers by readership numbers.

⁴ Gratitude is expressed to Leonie Klootwyk at the Media24 library for her assistance.

⁵ Articles from other newspapers were also occasionally represented in the sample, as they were identified as relevant in the searches of the SAMedia archive. However, the newspapers in Table I were identified as having sizable readership numbers, and therefore, special attention was given to ensure that these were represented in the sample.

assessment of each article. They then discussed each article and its score, and where their scores differed they agreed on a consensus index value for each.

The two researchers made some preliminary observations after reading the media articles. It was noted that generally the economic content of the articles was of a low quality. There were many mistakes in economic reasoning and a misunderstanding of the inflation targeting system. Although this understanding did improve over time, even years after the introduction of the inflation targeting framework, misunderstandings of the fundamental issues were not uncommon. For example, in June 2006, the editorial of the *Business Day* displayed a misunderstanding of the forward-looking nature of monetary policy and the flexibility with which the SARB conducts inflation targeting.

“The Bank’s inflation-targeting mandate now doesn’t permit it to let inflation go above the 6% ceiling of the target range for even a single month.”

(Business Day, 9 June 2006: 10)

Similarly, the following extract from the editorial of the *City Press* in 2008 claims that the SARB is employing strict inflation targeting, where the Bank places no weight at all on economic growth.

“Calls to have the bank’s mandate expanded to include job creation appear to be justified. The exclusive focus on fighting inflation has meant that borrowing money is expensive and the credit squeeze has compounded the problem.”

(City Press, 14 December 2008: 26)

Fortunately, Mervyn King’s (1997) ‘inflation nutter’ (who places no weight on any objective but inflation) is a hypothetical character, an extreme case scenario, and there is no evidence that the SARB deserves such a title. A reading of the SARB’s constitutional mandate makes it clear that even the pursuance of price stability as the primary (not exclusive) objective of the Bank is done with the intention of improving the prospects for economic growth in South Africa.

“... to protect the value of the currency of the Republic in the interest of balanced and sustainable growth in the Republic.”

(South African Reserve Bank Act 90 of 1989, amended: 3)

Some newspapers made more effort to grapple with the system than others, which was probably influenced by the perceived demands of their audiences (as discussed in section 2.3). For example, the Business Day devoted notably more valuable newspaper space and journalistic effort to reporting on monetary policy decisions than the *Daily Sun* did. However, many of the media reports consisted of undigested patch writing, which reflected little effort to evaluate the policy decisions. They often relied extensively on quoting market economists and were internally inconsistent (especially if the economists quoted did not agree).

There appeared to be a general bias indicating that repo rate cuts were welcomed and rises were met with criticism. Cartoons were often amazingly extreme and mostly negative (although their satirical nature is acknowledged). They often attributed to Governor Mboweni intent and power that seems misplaced. The two examples reproduced below were hardly exceptional in this regard.



3.1.2. Quantitative index

The second index is a quantitative index that was created to measure the extent of the media coverage (*COV*) given. This index ranges from 1, representing poor media coverage, to 5, representing very extensive media coverage. The criteria used to allocate values for the quantitative index are the size of the article, its position in the newspaper, and its authorship.

In line with media industry practice (VMS, 2006), the standard advertising unit (SAU) or column inch was used to compare the size of each article. Using a ruler to measure the length and width and then multiplying the two (see appendix for further details), the column inch measure (a single number) was calculated for each article. The result is a continuous series of numbers, which was divided into 5 groups (percentiles) distinguishing articles according to size. The extent of the coverage also accounts for the position of the article in the newspaper, recognising, for example, that an article on the front page

represents better coverage of the SARB’s communication than an article on page 5. Finally, the authorship of each article is considered, specifically whether the article was written by one of the newspaper’s own staff, reflecting that greater importance was placed on the issue reported on, or whether the article was a Sapa or Reuters article.

In order to account for all of these factors, a protocol was designed to categorise the extent of the coverage of each article (see Table I). The size of the article is captured by the rows. The smallest articles are in the top row (article size 1) and the largest are in the bottom row (article size 5). The location and authorship of the articles are captured in the columns, which are ranked from those that are allocated the prime positions and attention of the newspaper’s staff, in the left-most column, to those allocated the lowest ranked locations and little attention from the staff, in the right-most column. For example, the first column from the left represents front page articles written by the newspaper’s own staff. Note that the protocol illustrated by Table I is not necessarily symmetrical. In addition, as discussed earlier, cartoons were also included in the sample. All cartoons were allocated a quantitative index value of 4 (irrespective of their size and location).

Table I: Protocol for quantitative index, *COV*

Article Size	Front pg; Staff 6	Editor’s page or editorial; Staff 5	Pg 2, 3 or the business report; Staff 4	Pg 2, 3 or the business report; SAPA, etc. 3	Not pg 1-3 or the business report; Staff 2	Not pg 1-3 or the business report; SAPA, etc. 1
1	3	2	1	1	0	0
2	3	3	2	1	1	0
3	3	3	2	1	1	0
4	4	3	3	1	1	1
5	4	4	3	2	2	1

Source: Own construction

3.2. EXPLORATORY DATA ANALYSIS

Firstly, the index data created was evaluated using frequency tables. The rows of frequency table 1 (Table II) reflect whether the repo rate was cut, held constant or raised at each MPC meeting, and the columns represent the values (between -2 and 2) of the assessment index allocated to media reports in the week following each MPC meeting. The first 5 columns of numbers reflect the frequency with which each case occurred in the sample period. For example, the top left-hand cell shows that on 12 occasions a cut in the repo rate was followed by media reports with an index value of -2. The last 5 columns reflect the same

information as a proportion of the row total. For example, 7% of the time a repo rate cut was followed by media reports with an assessment index of -2.

Table II: Frequency table for qualitative index, *ASS*

Change in the repo rate at each MPC meeting	Assessment of the media reports in the week following each MPC meeting										
						Total					
		-2	-1	0	1	2		p(-2)	p(-1)	p(0)	p(1)
Cut	12	30	47	46	26	161	0.07	0.19	0.29	0.29	0.16
Constant	13	20	72	48	10	163	0.08	0.12	0.44	0.29	0.06
Rise	48	52	40	30	5	175	0.27	0.30	0.23	0.17	0.03
						499					

Due to the imprecise nature of the data itself, it is useful to consider broader categorisations, which highlight clearer trends. When the repo rate was cut (top row), 45% of the media reports received favourable assessments (either p(1) or p(2)) and 29% of the media reports received neutral assessments. This suggests that the vast majority of the time a repo rate cut was not judged to have been inappropriate, given the economic environment. Almost half (45%) of the media reports following decisions to keep the repo rate constant (second row) were neutral and a large proportion (29%) were only slightly positive. The strongest result occurred in cases where the repo rate was raised (third row); 57% of the media reports were given an unfavourable assessment (either p(-2) or p(-1)).

If we assume that neither the MPC nor the media is biased and we assume that there is no uncertainty about the economic environment, then we would expect the SARB and the media to agree on the appropriate monetary policy stance. In reality, there is uncertainty about the economic environment, and the data analysis reveals a pattern of systematic, negative assessments by the media when the repo rate is raised. The uncertain economic environment cannot be responsible for this systematic pattern, so it must be the result of bias, by either the MPC or the media.

A range of statistics and empirical evaluations of the SARB's track record are available to evaluate the claim that this observed pattern is the result of an overly 'hawkish' SARB. If the SARB displayed a bias towards tightening, inflation would consistently have been either within or below the inflating targeting band over the sample period. Instead, the targeted inflation rate was above the upper band for approximately 60% of the sample period. In addition, empirical analyses by Woglom (2003) and Ortiz and Sturzenegger (2007) of the SARB's reaction find that the SARB places a substantial weight on output. Woglom (2003) finds that the SARB placed more weight on output during the inflation targeting period than in the period immediately prior to the adoption of inflation targeting, and Ortiz and

Stuzenegger (2007) argue that the weight devoted to output in the reaction function of the SARB is relatively high compared with other emerging market economies. The 18 – 24 month target horizon of the SARB also bares testament to the flexible manner in which the SARB has implemented monetary policy, because it allows the SARB discretion and flexibility in pursuing the inflation target (Du Plessis, 2007). Short-term breaches of the inflation target will be tolerated by the SARB as long as inflation is expected to move back within the range before the end of the target horizon. In addition, the fact that the inflation targeting regime has lasted almost a decade is impressive by modern standards and again reflects the flexibility the framework allows in handling different situations (Du Plessis, 2007). In conclusion, there is no evidence of bias by the SARB towards tightening monetary policy. By deduction, the assessment index seems to simply reflect that the media is pleased when the repo rate is decreased, reducing the cost of credit, and unhappy when the opposite occurs (reflecting the *popularity* of the decision). On average, these results reflect little attempt by journalists to judge the *appropriateness* of each decision, based on an understanding of the institutional framework and economic circumstances.

Tables III and IV are the frequency tables for the two subcomponents (size and location) of the composite index, *COV*, and Table V reflects the frequency tables for the composite index, *COV*. Table III reflect little variation in the size of the articles across categories (they are all around 0.20), although using the broader categorisations does reveal some weak associations. When the repo rate was cut, 0.46 of the articles were small (size 1 or 2); when it was kept constant, 0.41 of the articles were small; and when it was raised, 0.36 were small. In contrast, the proportion of the articles that were large was 0.36 when the rate was cut, 0.38 when it was held constant, and 0.43 when it was raised. In summary, rate cuts were associated with the smallest media articles, and rises in the repo rate resulted in larger articles. The article size varied based on the direction of the monetary policy decision, rather than on an evaluation of the appropriateness thereof.

Table III: Frequency table for quantitative index, *size*

Change in the repo rate at each MPC meeting	Size of the media reports in the week following each MPC meeting											
							Total					
		1	2	3	4	5		p(1)	p(2)	p(3)	p(4)	p(5)
Cut	35	29	24	20	30	138	0.25	0.21	0.17	0.14	0.22	
Constant	27	31	30	32	21	141	0.19	0.22	0.21	0.23	0.15	
Rise	26	26	30	32	28	142	0.18	0.18	0.21	0.23	0.20	
						421						

According to Table IV, very few media reports are in location 1, which represents articles that are not on pages 1-3 or the Business Report and are not written by the newspaper's own staff. There are also very

few reports in category 3, which represents articles on pages 2, 3 or the in the Business Report, but which are not written by the newspaper's own staff. The clearest result is that articles are more likely to appear in the prime locations and to be reported by the newspaper's own staff (categories 4 or 5) when the repo rate is cut (0.42) or raised (0.43) than when the rate is held constant (0.29). The location of the articles appears to depend on whether the repo rate was adjusted, rather than on the level of disagreement with the decision.

Table IV: Frequency table for quantitative index, *location*

Change in the repo rate at each MPC meeting	Location of the media reports in the week following each MPC meeting													
								Total						
		1	2	3	4	5	6		p(1)	p(2)	p(3)	p(4)	p(5)	p(6)
Cut	4	43	4	28	35	24	138	0.03	0.31	0.03	0.20	0.25	0.17	
Constant	6	58	0	35	26	16	141	0.04	0.41	0.00	0.25	0.18	0.11	
Rise	11	58	0	12	40	21	142	0.08	0.41	0.00	0.08	0.28	0.15	
							421							

The composite index, extent of coverage (*COV*) (Table V), finds that few reports fall into category 0 (the weakest coverage) and there is little variation across categories 1 - 4. The clearest results are that again articles are more likely (0.50 and 0.51 of the time) to fall into categories 3 and 4 (greatest extent of coverage) when the repo rate is changed than when it is held constant (0.43 of the time)

Table V: Frequency table for composite quantitative index, *COV*

Change in the repo rate at each MPC meeting	Extent of coverage of the media reports in the week following each MPC meeting										
							Total				
		0	1	2	3	4		p(0)	p(1)	p(2)	p(3)
Cut	11	33	35	45	37	161	0.07	0.20	0.22	0.28	0.23
Constant	15	46	32	38	32	163	0.09	0.28	0.20	0.23	0.20
Rise	11	43	34	40	47	175	0.06	0.25	0.19	0.23	0.27
						499					

Formal regression techniques are adopted in the following section, which offers some insight into the robustness of the results from the four frequency tables above.

3.3. FACTORS THAT CORRELATE WITH THE EXTENT OF MEDIA COVERAGE AND ASSESSMENT OF MONETARY POLICY BY THE MEDIA

A list of factors that are likely to influence *COV* and *ASS* are listed below. Berger et al. (2006) included determinants related to the ECB's policy decisions and communication, the economic environment, and

because they were using panel data for a number of EU countries, country-specific conditions were considered. Similar factors related to the SARB's policy decisions and communication, and its economic environment were identified in this paper, but the country-specific variables were irrelevant, as only South Africa was investigated.

Monetary policy surprise:

Two dummy variables were created, *surprise up* and *surprise down*, to indicate whether the particular monetary policy decision was a surprise in either direction. For the *surprise up* variable, a value of 1 was allocated if the Banker's Acceptance rate (BA) rate changed by 0.25 or more on the day of the MPC's monetary policy announcement, reflecting that either monetary authorities increased the repo rate when the financial markets did not expect them to, or they increased the repo rate more than the markets had predicted. Otherwise, the variable was allocated a value of 0. The *surprise down* variable received a 1 if the BA rate changed by -0.25 or more, and 0 otherwise. Berger et al. (2006) did not make the distinction between a surprise up and a surprise down, but the frequency tables in the previous section suggested that the distinction would be valuable for analysing the South African media.

Adjustment of the repo rate:

Four dummy variables (*100 decrease*, *50 decrease*, *50 rise*, *100 rise*) were constructed to capture adjustments made to the repo rate. The dummy variables were used to differentiate between upward adjustments of 0 - 50 basis points (bp) (*50 rise*), upward adjustments of 51 - 100 bp (*100 rise*), downward adjustments of 0 - 50 bp (*50 decrease*) and downward adjustments of 51 - 100 bp (*100 decrease*). It was deemed appropriate to investigate the potentially asymmetrical reactions to upward and downward adjustments of the repo rate that were suggested by the frequency tables.

GDP growth relative to the sample average:

By subtracting the average GDP growth for the sample period from the actual GDP growth for each period, the variable *GDP:Avg* was constructed to reflect where GDP growth was situated relative to the trend over the sample period. A positive (negative) value indicates that the economy is growing faster (slower) than the average for the sample period. This variable was

constructed using real-time data⁶ from the original statistical releases archived on the STATS SA website.

Inflation outside the inflation targeting range:

A variable *outside range* was used to measure inflation relative to the target band. A value of 0 was assigned to the index when inflation was within the target range of 3-6% and 6% (3%) was subtracted from the actual inflation figure in each period when inflation was above (below) the upper (lower) limit of the target band, in order to capture the distance of inflation from the target. In line with the discussion for the preceding variable, real-time data⁷ from the STATS SA website was used to construct this inflation variable.

Adjustments of FED policy rates:

Two dummy variables were created to capture whether the SARB's adjustments of the repo rate were in line with the direction of the most recent change in the Fed Funds rate. A value of 1 was allocated to the variable *F&S increase* when the most recent change in the Fed Funds rate was upward and was followed by the SARB increasing its policy rate, and a value of 0 otherwise. Conversely, a value of 1 was allocated to the variable *F&S decrease* when the SARB's reduction of the repo rate is preceded by a downward movement of the Fed Funds rate. This variable is designed to capture the degree to which the SARB's decision is judged against that of the Fed. This variable was constructed using data that was sourced from the Federal Reserve Bank of New York's and the South African Reserve Bank's websites.

Inconsistency:

In Reid and Du Plessis (2010), on four occasions the SARB's monetary policy actions were judged to be inconsistent with its communication at the previous meeting. A dummy variable was constructed for this paper in which these four instances are allocated a 1 and the rest of the MPC decisions in the sample period a 0.

⁶ GDP data usually undergoes numerous revisions after the first release of the data to the public, so if the final historical time series is downloaded and used for empirical work, it is ignoring the fact that that was often not the information available to decision makers at the time the decision was made. The figures used in these regressions are the first releases of GDP data for that quarter.

⁷ The inflation index used was the one officially targeted by the SARB. Therefore, CPIX was used until the end of 2008, and CPI thereafter.

Inter-meeting communication:

A number of dummy variables were constructed to investigate whether they had any impact on the assessment and extent of coverage with which the media reported on the following decisions. The inter-meeting communications considered were the monetary policy forums (MPF), monetary policy reviews (MPR), quarterly bulletins (QB), parliamentary briefings (PB), speeches by the governor (SP), annual general meetings (AGM) and the annual reports. All of these are occasions on which the bank comments on monetary policy. Only speeches by the Governor of the Reserve Bank that were relevant to South African monetary policy were included. It was also recognised that the MPR is released on the evening of the first MPF, so it is not possible to distinguish between the impacts of the two, and therefore, only the variable *MPR* was used to capture the impact of the two. Similarly, the annual report is released officially on the evening of the AGM, so only the variable *AGM* was used in the regression analysis.

3.4. REGRESSION ANALYSIS

Following the approach of Berger et al. (2006), ordered probit models were used to identify factors that correlate with the extent of media coverage. Berger et al. use panel data to evaluate the role of the media in the constituent countries of the European Union, whereas this study focuses on South African time series data alone. The panel data has the advantage of allowing the use of fixed effects to limit the impact of the subjectivity of the experts who created the indices.

Table VI: The relationship between *COV* and *ASS* in media reports

Dependent variable: <i>COV</i>	Model 1	Model 2	Model 3	Model 4
Assessment	-0.085**	--	-0.050	--
Absolute assessment	--	0.438***	0.427***	0.388***
Negative assessment	--	--	--	0.153 (0.185)
Number of observations	500	500	500	500

*Note: Models 1 - 4 are ordered probit regressions, and the regression coefficients are represented in the cells. White heteroskedasticity-consistent standard errors were used. ***, ** and * signify that a variable is significant at the 1%, 5% and 10% levels, and numbers in brackets appear below coefficients where the p-value is between 10 and 25%.*

Models 1 - 4 (Table VI) investigate whether there is a relationship between *COV* and *ASS* in the media reports. The dependent variable is *COV*. Model 1 (column 1) tested whether there is a linear relationship between *COV* and *ASS*, and model 2 whether there is a relationship between *COV* and absolute

assessment. The coefficients on assessment in Model 1 and absolute assessment in Model 2 were both significant. Furthermore, when both assessment and absolute assessment were included in the same regression in Model 3, absolute assessment dominated, so there does not appear to be a robust linear relationship between *COV* and *ASS*. Model 4 included absolute assessment and negative assessment to test whether the relationship between *COV* and *ASS* is non-linear. The coefficient on negative assessment was insignificant at the standard 1%, 5% and 10% levels, but given the imprecise nature of the data, its p-value of 18.5% does not convincingly rule out the possibility of a non-linear relationship. These results are in line with the main findings from the frequency tables for *COV*, indicating that changes in the repo rate are more likely to receive a greater extent of coverage than a decision to keep the repo rate constant. The significantly negative coefficient on assessment in Model 1 and the marginally significant coefficient on negative assessment in Model 4 also indicate that *COV* possibly increases slightly when *ASS* is negative. However, this result is less conclusive.

Regressions 5 - 10 in Table VII aim to identify factors in our list that correlate with *ASS*. Model 5 is the most parsimonious of the models and includes the variables identified as most likely to influence the assessment in media reports. The regression results indicate that a large decrease in the repo rate (a 100bp decrease) has a significantly positive effect on the assessment, and any increase of the repo rate (either 50 or 100 basis points) has a significantly negative effect. This regression reinforces the results of the frequency tables. The two variables *outside range* and *GDP:Avg* are designed to capture the monitoring role of the media, based on the economic circumstances. Although the coefficient on *outside range* is only significant at the 12,8% level of significance, as before, the imprecise nature of this data means that this positive coefficient cannot convincingly be judged to be insignificant. However, *ASS* is most strongly affected by a rise in the repo rate, which elicits a significantly negative report.

In Model 6, the variables *surprise up* and *surprise down* were included instead of the four dummy variables representing adjustments of the repo rate. The reason that these surprise variables are not included with the repo rate adjustment variables is that they have a substantial degree of collinearity⁸. However, both groups of variables were expected to exert an influence on assessment, so Model 6 was estimated to check whether there was any important change in the regression results when the first set of variables were replaced with the second. The results reflect a similar pattern to those of Model 5. A surprise adjustment of the repo rate upward had a significantly negative effect and a surprise adjustment downward, a significantly positive effect on assessment. In addition, *GDP:Avg* had a significantly

⁸ This was confirmed using auxiliary regressions, regressing the repo rate changes on surprise up and surprise down.

negative coefficient, which is interpreted as an indication that an increase in the repo rate is generally given an unfavourable assessment when it is viewed as potentially harming robust economic growth. However, this finding is not robust, as it is not significant in the other specifications of the model.

Model 7 is an expansion of Model 5, where the variables *inconsistency*, *F&S increase*, and *F&S decrease* are added to the model. The positive coefficient on the large decrease in the repo rate and the negative coefficients on the variables that capture the increases in the repo rate remain significant, confirming the robustness of these results, but the slightly significant negative coefficient on the variable capturing whether inflation is outside the target band is no longer significant. In addition, the variable that captures when the Fed and the SARB are both increasing their policy rates is also slightly significant and positive. This suggests that increases in the South African repo rate are more readily accepted when the policy rate of the Fed is also being increased at that time. It is interesting that the response is asymmetrical in that there is no significant impact on assessment when both central banks are reducing rates.

The inter-meeting communication variables are introduced in Model 8. This is done in order to investigate whether inter-meeting communication by the SARB is effective at influencing evaluation of the policy decisions by the media. The negative coefficient on the AGM variable is highly significant, the positive coefficient on the Quarterly Bulletin is significant at the 5% level, and the negative coefficient on parliamentary briefings is marginally significant. The robustness of the impacts of the inter-meeting communication variables was tested using slightly different specifications of Model 8. The impact of the AGM on assessment remained highly significant and negative, and the QB variable was consistently positive and significant as the model was adjusted. The persistently significant, negative impact of the AGM was surprising and warranted further investigation. On closer inspection, it was confirmed that this result was being driven by only two points (the AGMs of 2002 and 2003)⁹. Once a dummy variable was created to control for these two occasions (Model 9), the impact of the AGMs became insignificant. The findings reflect little influence of inter-meeting communication on the evaluation of monetary policy by the media – only the QB variable has a significant influence on assessment.

⁹ The SARB AGMs of 2002 and 2003 were uncharacteristically newsworthy. Media reports following the AGM of 2003 focused strikingly on Governor Mboweni's salary increase, which was far above the inflation target, and on shareholder activism at the SARB's AGM. In turn, media reports following the 2002 AGM were dominated by disagreement between the SARB Governor and the Minister of Finance regarding who should be responsible for banking regulation. Dramatic language used in these report such as "Mboweni and Manuel lock horns", "clash on bank supervision out in the open" and "low intensity war" captures the negative mood created by their disagreement.

Table VII: Factors that correlate with ASS

Dependent variable: ASS	Model 5	Model 6	Model 7	Model 8	Model 9	Model 10
Surprise up	--	-0.598***	--	--	--	--
Surprise down	--	0.359**	--	--	--	--
100 decrease	0.245*	--	0.030*	0.341**	0.394**	0.355*
50 decrease	0.061	--	-0.086	-0.037	-0.008	-0.107
50 rise	-0.713***	--	-0.861***	-0.819***	-0.847***	-0.949***
100 rise	-0.742***	--	-0.741***	-0.522**	-0.283 (0.155)	-0.305 (0.158)
Outside range	-0.053 (0.128)	-0.040	-0.041	0.044 (0.192)	0.021	0.022
GDP:Avg	-0.019	-0.042**	0.016	0.016	-0.020	0.019
Inconsistency	--	--	0.078	-0.076	0.060	0.046
F&S increase	--	--	0.338 (0.108)	0.291 (0.179)	0.336 (0.133)	0.428*
F&S decrease	--	--	-0.137	-0.095	-0.002	-0.023
MPR	--	--	--	-0.064	0.094	-0.009
Q. Bulletin	--	--	--	0.267**	0.206*	0.137
Parliamentary briefings	--	--	--	-0.135 (0.161)	-0.108	-0.091
Speeches	--	--	--	0.062	0.033	0.062
AGM	--	--	--	-0.535***	-0.227	-0.228
D_AGM(02&03)	--	--	--	--	-0.769***	-0.955***
Observations	500	500	500	500	500	500

Note: Models 1 - 4 are ordered probit regressions and the regression coefficients are represented in the cells. White heteroskedasticity-consistent standard errors were used. ***, ** and * signify that a variable is significant at the 1%, 5% and 10% levels, and numbers in brackets appear below coefficients where the p-value is between 10 and 20%.

A range of ‘goodness of fit’ measures have been proposed in the literature, and a few of these will be considered here to assess the adequacy of the proposed models. This range of measures is used due to the comparative difficulty in assessing the quality of a model with limited dependent variable. According to Wooldridge (2002:465), for logit and probit models “goodness of fit is not as important as the statistical and economic significance of the explanatory variables”. In addition, various Pseudo-R squareds commonly used to evaluate the fit of a model with a limited dependent variable have fewer intuitive interpretations.

Firstly, contingency tables were considered for each of the regressions, allowing type 1 and 2 errors to be identified. Table VIII presents the contingency table for Model 9, where the frequency of each index value between -2 and 2 as per the actual index are presented horizontally in row, and the frequency of each level of assessment predicted by the model is presented in the columns.

It is immediately evident that the variables included in the model lead to a skewed distribution of predictions. Although the total values of the actual index (final column) are relatively normally distributed across the index values, the model never predicts the assessment of -1 or 2. Most of the variables included in the models are dummy variables, so to test that it was not their discrete nature that made it more difficult for the model to increase from one index value to the next, a number of the variables were changed to continuous regressors. Changes in the repo rate were represented by one variable, *policy change*; one variable was constructed to capture the magnitude and direction of the surprise experienced in reaction to policy changes, and continuous variables were created to capture the difference between the policy changes of the Federal Reserve Bank and the SARB. These changes did not improve the ability of the model to predict -1 and 2 index values and diminished the quality of the model. Most importantly, the four dummy variables were preferable in order to capture the different responses to the specific direction and magnitude of the policy changes. Therefore, the regressors in question were returned to their original forms.

The skew predictions of the models suggest that the variables included in the models are more sensitive to MPC decisions that elicit a strongly negative reaction. This is consistent with the robust finding that the coefficient on the variable *F&S increase* is marginally significant, but that on *F&S decrease* is insignificant. This suggests that assessments in media reports are more favourable towards increases of the SARB’s repo rate that are preceded by an increase in the Fed Funds rate, whereas a decrease in the SARB’s repo rate that is preceded by a decrease in the Fed’s policy rate has no significant impact. The media is more sensitive when the SARB is tightening monetary policy than when it is loosening it, and they are more likely to accept the SARB’s decision if it is not out of step with the Fed’s monetary policy.

Table VIII: Contingency table for Model 9

		ASSESSMENT PREDICTED BY THE MODEL			
		-2	0	1	Total
ACTUAL ASSESSMENT	-2	30	39	4	73
	-1	28	56	18	102
	0	17	103	39	159
	1	7	77	41	125
	2	1	20	20	41
	Total	83	295	122	500

To improve the model’s ability to predict, the index was reduced to a coarser grid, where all negative index values are represented as -1 and all positive index values by 1 (Model 10 in Table VII). The results

are very similar to those of Model 9, except that now none of the inter-meeting communication variables seem to influence assessment.

Table IX presents the contingency table for Model 10, and these results are used to identify the true (false) positives and true (false) negatives in Table X. When *ASS* is simplified in this way, the model is able to predict all three index values. The true positives represent the proportion of the time that the model correctly predicted that a specific index value would occur. For example, according to the top left cell, 58% of the time the model correctly predicted a negative index value. The false positives capture the proportion of the time that the model incorrectly predicted that specific index value, which is the type 1 error). Similarly, the false negatives represent the type 2 errors, where the model incorrectly predicts that assessment will not be a specific index value. For example, the top right-hand cell reports that 22% of the time when the model predicted that assessment *would not* be 1, it *was* indeed 1.

According to Table X, the model is far more susceptible to type 1 errors than type 2 errors. In addition, the type 1 errors deteriorate as we move down the rows from -1 - 1, which is a result of the skewed distribution of the model predictions, given the independent variables of the model. To gauge how far wrong the model predicts when it does predict incorrectly, the percentage of predictions that were more than one cell away from the correct predictions were considered. When the true value of the assessment index was -1, 29% of the time the model mistakenly predicted a 1, and when the true index value was 1, 20% of the time the model mistakenly predicted -1. The type 1 and 2 errors identified for Models 5 - 9 are similar to those of Model 10 and are available from the authors on request.

Table IX: Contingency table for Model 10

ACTUAL ASSESSMENT	ASSESSMENT PREDICTED BY THE MODEL				
		-1	0	1	Total
-1		106	17	52	175
0		44	34	81	159
1		34	27	105	166
Total		184	78	238	500

Table X: Type 1 and 2 errors for Model 10

	True positives	False positives	True negatives	False negatives
-1	58%	42%	78%	22%
0	44%	56%	70%	30%
1	44%	56%	77%	23%

To further evaluate the adequacy of this model, various other measures of fit were considered (Greene and Hensher, 2010 and UCLA: Academic Technology Services, 2010). Due to the nature of these models,

the measures of fit can either compare the ability of competing models to fit the data, or compare the model to the null hypothesis of ‘no model’ (in the sense of a model with only a constant as a regressor) (Greene and Hensher, 2010). For example, McFadden’s pseudo R-squared considers the likelihood ratios to assess the degree to which the full model improves on the intercept model. McFadden’s pseudo R-squared for Model 10 is 0.077.

More revealing, and related to the analysis in the tables above, are the Count R-squared and adjusted count R-squared goodness of fit measures. The count R-squared provides a scalar that represents the percentage correctly predicted by the model. The count R-squared for Model 10 is 0.478. The adjusted count R-squared adjusts this measure to control for the modeller’s ‘best guess’. In a bivariate model where one outcome is obviously more likely than the other, by simply guessing the more likely outcome all the time, the modeller would be correct most of the time (UCLA: Academic Technology Services, 2010). To apply this to our multivariate case, we adjusted the count R-squared by 0.333 (assuming that each of the three categories has an equal probability of being chosen):

$$R^2 = (\text{No. correctly predicted} - \text{count of the most frequent outcome}) / (\text{Total obs} - \text{count of the most frequent outcome})$$

The adjusted count R-squared for Model 10 is 0.215, so the model is 21,5% better than a reasonable guess that each category of the index is equally likely.

Models 11 - 13 investigate some factors that potentially correlate with the extent of coverage (*COV*). The coefficient on absolute coverage is consistently positive and significant, indicating that the more extreme the assessment the greater the extent of coverage. All the other coefficients are clearly insignificant, except *Outside π range*, which is consistently positive and significant. This is an indication that the media does play some monitoring role in that they increase media coverage of monetary policy when the SARB is not achieving the goal of keeping inflation within the target range, which it communicated to the public. This is the easiest measure against which to gauge the performance of the SARB, and by increasing media coverage during these periods, the media has ‘placed monetary policy on the agenda’. Monetary policy officials should recognise that the general public, via the agenda-setting behaviour of the media, are sensitised during these periods.

Table XI: Factors that correlate with *COV*

Dependent variable: <i>COV</i>	Model 11	Model 12	Model 13
Absolute assessment	0.443***	0.435***	0.448***
Surprise up	--	0.109	--
Surprise down	--	-0.056	--
100 decrease	0.124	--	0.149
50 decrease	-0.018	--	-0.007
50 rise	-0.045	--	-0.027
100 rise	0.140	--	0.225
Outside range	0.238**	0.262**	0.215*
GDP > avg	0.135	0.111	0.128
Inconsistency	--	--	-0.143
F&S increase	--	--	-0.050
F&S decrease	--	--	-0.062
Number of observations	500	500	500

Note: Models 10 - 13 are ordered probit regressions and the regression coefficients are represented in the cells. White heteroskedasticity-consistent standard errors were used. ***, ** and * signify that a variable is significant at the 1%, 5% and 10% levels, and numbers in brackets appear below coefficients where the *p*-value is between 10 and 25%.

The contingency table for Model 13 reflected a similar pattern as Models 5 - 10. The model does not predict any *COV* index values of 0 or 2, which can be explained by the fact that the index values of 0 and 2 were the least frequent in the actual data (as is clear from the exploratory data analysis). McFadden's pseudo R-squared for Model 13 is 0.0363, the count R-squared is 0.348 and the adjusted count R-squared is 0.185. The results for Models 11 and 12 are similar to those for Model 13¹⁰.

By comparing the results above of Models 5-13 with those of Berger et al. (2006) for the European media, we can potentially gain more insight into the role of the South African media in the expectations transmission mechanism of monetary policy in South Africa.

4. COMPARISON WITH ECB RESULTS

Berger et al. (2006) find that in practice the European media positions itself to play a monitoring role, and it tends to report critical views more extensively than positive views. The results show that the tone of the reporting is more negative when the markets are surprised by a monetary policy decision, and when the latest inflation figure is above 2% (the ECB's definition of price stability). More crucially, the findings suggest that more inter-meeting communication, and ECB press conferences on the day of the monetary

¹⁰ The results for models 10 – 12 are available from the corresponding author on request.

policy decisions that provide more information lead to media coverage that is both more extensive and favourable. Although they find that reporting is always more negative when inflation is high, the surprising decisions appear to be better accepted when they are accompanied by extensive explanations and supported with information.

In contrast, the results of this study indicate that the South African media plays far less of a monitoring role in that the economic variables, *GDP:Avg* and *outside band*, seemed to have a limited impact on assessment, although being outside the inflation target band did increase the extent of coverage. These economic variables were far outweighed by what appeared to be an uncritical response to adjustments of the repo rate (particularly increases in the repo rate). Finally, inter-meeting communication does not seem to have had much impact, suggesting that the SARB is not making effective use of inter-meeting communication to influence the perceptions of the Bank by the media and public. A more deliberate attempt to understand its audience would potentially allow the SARB to improve its use of this channel of communication.

5. CONCLUSION

The monetary policy framework adopted by the SARB, inflation targeting, relies greatly on the expectations channel of the monetary policy transmission mechanism. The strategic interaction between central banks and financial markets has been extensively studied, enabling much more informed policy actions and communication. Comparatively little focus has been dedicated to understanding the communication of central banks with the general public. This paper explored the role of the South African newspaper media in the expectations channel of the transmission mechanism of the SARB. The paper does not model the transmission mechanism via the media so it cannot comment on the nature of the media's impact on expectations, but it does build an argument that the media does affect their expectations in some way (i.e. the media matters). The objective was to systematically investigate the process by which the SARB's communication is transformed into news, which will impact on the inflation expectations of the general public (potentially the source of much of South Africa's wage and price pressures). The results reflect a relative lack of critical assessment of monetary policy by the media, which limits the degree to which the SARB is held accountable to the public against its stated objectives. The media does increase the extent of coverage when the SARB is outside of the target range, but inter-meeting communication appears to be ineffective at influencing the assessment of monetary policy decisions by the media. There is scope for the SARB to use communication to consciously engage with

the media, in order to make use of this opportunity to contribute to the level of economic evaluation undertaken by stakeholders and build credibility.

APPENDIX

Standard column inches

‘Standard Advertising Unit Column Inches’ are typically used to sell or compare space in a newspaper. If, as was the case for this study, the media material is paper-based (rather than electronic), the SAU column inches are calculated using a ruler (VMS, 2006). Measuring horizontally, the width of the article is represented as number of SAU columns, using the list below:

- 1 SAU column = 2 1/16”
- 2 SAU column = 4 1/4”
- 3 SAU column = 6 7/16”
- 4 SAU column = 8 5/8”
- 5 SAU column = 10 13/16”
- 6 SAU column = 13”

Then the length of the articles is measured in inches, and the two measurements are multiplied to represent the size of the article in column inches (one number).

Table AI

Newspaper title	Characteristics	AMPS (% of adult population that read these newspapers)
Business Day	National; Daily	0.3%
City Press	Weekly	6.5%
Daily Sun	Daily	14%
Rapport	Weekly	4.5%
Sowetan	Daily	4.7%
Sunday Sun	Weekly	8.3%
Sunday Times	National; Weekly	12.6%

Source: (AMPS, 2009A)

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